Interprofessional Learning and Rural Paramedic Practice

by

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Submitted in fulfilment of the requirements for the Degree of

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Declaration of Original Authorship

I hereby declare that this thesis is my own work and does not contain material which has been accepted for the award of any other degree or diploma in the University of Tasmania or any other institution, except by way of background information and duly acknowledged in this thesis, and to the best of my knowledge and belief it does not contain material previously published or written by any other person, except where due reference is made in the text of the thesis, nor does the thesis contain any material that infringes copyright.

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The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University. This study gained ethics approval through The Tasmania Health and Medical Research Ethics Committee (H00130350).

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Works arising from this thesis

The publications listed below are works developed from this thesis:

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Author contributions:

Candidate was the primary author, conducted and collated the research. Authors 1 and 2 contributed to the formalisation and development of the idea through regular supervision and mentorship. Authors 1 and 2 assisted with refinement and presentation of the publication.

Author percent contributions: PM 70%, TB 15%, JW 15%

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Preface

The underlying drive for this investigation of interprofessional learning and rural paramedic practice arose from my own experiences with rural paramedic care. Initially training and working as a registered nurse in the early 1980s, my interests eventually turned to paramedic practice. I have since been involved in paramedicine for over 30 years. My experiences in this profession have extended from large urban centres to small rural areas, in the Australian states of Victoria and Tasmania. I have worked in a variety of roles, including intensive care paramedic, rescue paramedic, flight paramedic, educator and rural branch station officer.

My Research Master's degree (Mulholland, 2010) examines differences between rural and urban paramedics; during this research I observed that a degree of interaction took place between paramedics and other professionals. It was this observation, and my continued personal experience with rural paramedic practice that sparked interest in the nature of this interaction and its potential impact on the provision of patient care.

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Glossary of terms and abbreviations

Accident and Emergency (A&E)	Hospital department for treatment of patients presenting with acute problems.
Advanced Life Support (ALS) Paramedic	Paramedic trained to provide advanced pre-hospital care. This includes advanced drug therapy and airway maintenance. Sometimes used interchangeably with intensive care paramedic but may also refer to paramedics with slightly limited skills sets to intensive care paramedics.
Ambulance Tasmania (AT)	Government run ambulance service in state of Tasmania, Australia.
Australian college of ambulance professionals (ACAP)	Australian organisation established in 2000 for the purpose of maintaining ambulance organisation accountability and standards of service.
Australian Standard Geographical Classification – Remoteness Area (ASGC-RA) classification scale	Geographical categories based on the physical distance of a location from the nearest urban centre and access to goods and services, based on population size.
Community paramedic	A public health approach both before and after traditional paramedic response leading to services such as home visits, falls prevention, medication management, palliative care, phlebotomy, vaccinations and wound care (O'Meara, Wingrove, & Nolan, 2018).
Comms	Abbreviation for ambulance communications department, responsible for taking incoming calls and dispatch of cases.
Continuing Professional Development (CPD)	Ongoing education enabling health professionals to satisfy personal and professional needs and to meet career goals and maintain competence in their field.
Council of Ambulance Authorities (CAA)	Formal organisation in Australia active in the development of national education standards and establishing means to accredit education providers.
Critical Incident technique (CIT)	A set of procedures for collecting direct observations of human behaviour in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles. The Critical Incident technique outlines procedures for collecting observed incidents having special significance and meeting systematically defined criteria (Flanagan, 1954: 327).
Elite paramedic	A form of paramedic practice in the UK where paramedics take clinical leadership roles and practice advanced skills to enable care for most serious cases of trauma.
Emergency care practitioner	Paramedics who have been trained to work from medical practitioner surgeries, support primary health care teams, attend unscheduled home visits, and arrange hospital admissions, with time divided between local minor injury units and ambulance stations (Cooper *et al.*, 2004: 616-617; Halter & Ellison, 2008: 1; Woollard, 2006).
Emergency Medical Services (EMS)	An alternative way of stating paramedic services.

Emergency Medical Services Protection Association (EMPSA)	EMPSA's objective is to give legal advice and representation to ambulance employees on employment-based issues.
Extended Care Paramedic (ECP)	Intensive care paramedics who have undertaken specific training to be able to deliver care to more chronic patients as well as minor trauma, with the main aim being to manage patient at home where hospital transport can be avoided.
Health workforce Australia (HWA)	Australian national government organisation established to progress health workforce issues. Closed in 2014 with functions merged to Department of Health.
Intensive care paramedic (ICP)	Paramedic trained to provide advanced pre-hospital care. This includes advanced drug therapy and airway maintenance.
Interprofessional education (IPE)	"When two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010: 13).
Interprofessional practice (IPP)	"When two or more professions are committed to working together to achieve a common purpose of health care delivery and mutual respect" (Freeth, Hammick, Reeves, Koppel, & Barr, 2005: xiv-xv).
Interprofessional learning (IPL)	"Interprofessional learning (IPL) is the overarching term encompassing interprofessional education and interprofessional practice. IPL philosophy supports health professionals working collaboratively in a health care setting. IPL aims to promote purposeful interaction with service users and carers, and quality patient centred care." (National Centre for Interprofessional Education and Collaborative Practice [NCIPECP] 2019).
Kirkpatrick Model	A typology developed by Kirkpatrick (1967) for the evaluation of the effectiveness of IPE.
Medicare Locals	Set up by Australian Commonwealth Government in 2011 to improve coordination and integration of primary health care in local communities, address service gaps and make it easier for patients to navigate their local health care system (Horvath, 2014).
Multi-Purpose Centre	Often rurally based medical centre providing wide range of inpatient and outpatient services from acute to chronic and aged care.
National Health Service (NHS)	Government health service of the United Kingdom.
Paramedics Australasia (PA)	Australian professional organisation representing practitioners who provide paramedic services in the community.
Paramedic	This current study uses the term paramedic to include those that have undertaken recognised training to perform pre-hospital care. The term includes not only advanced life support or intensive care qualified staff but also volunteers, and other relevant professionals such as nurses.
Paramedic community support officer	Paramedics in rural Victoria, Australia, work in close cooperation with local hospitals.
Paramedic practitioner	Paramedics specifically with an aim to determine alternative pathways to treatment rather than routine transport to hospital (Mason, Wardrope & Perrin, 2003:197).
Pre-Hospital care	Care provided to patients prior to hospital admission.

Pre-Licensure	That pertaining to education and training undertaken prior to eligibility for licensing in a particular profession. In this study, pre-licensure also pertains to undergraduate.
Post-Licensure	That pertaining to education and training undertaken after licensing in a particular profession. In this study, post-licensure also pertains to post-graduate.
Primary (Health) Care	A patient's first point of contact with a doctor or other health care team member (for example, nurse, pharmacist). Primary care includes, but is not limited to, disease management and prevention, disease cure, rehabilitation, palliative care and health promotion (Reeves & Goldman, 2006: 10).
Ramping	An extended delay between triage of ambulance patients when arriving in hospital accident and emergency and the ability to admit that patient to the emergency department. This results in ambulance being unable to clear to respond to further cases.
Rural ambulance Victoria (RAV)	Government run ambulance service of Victoria, Australia.
South Australian Ambulance Service (SAAS)	Government run ambulance service of South Australia, Australia.
Trans-disciplinary	Where some professional boundary overlap may be present, with different disciplines taking on expanded roles, transcending disciplinary boundaries in order to offer a holistic approach to practice (Choi & Pak, 2006: 359).
Vollie/s	Euphemism for volunteer/s.
Volunteer	A person engaged in the act of providing unpaid effort to parties to whom the worker owes no contractual, familial, or friendship obligation (Stirling, 2007: 18).
Volunteer ambulance officer (VAO)	In Australia, volunteers with paramedic services generally undertake vocational training in order to provide a basic level of care, which may include defibrillation and a limited range of drug therapy (Fahey & Walker, 2002:8-14).

List of acronyms

Note: these refer to Australian entities, except where noted.

A&E	Accident and Emergency Department
ACAP	Australian College of Ambulance Professionals
ACICBL	Advisory Committee on Interdisciplinary, Community Based Linkages
ACT	Australian Capital Territory
ACTAS	Australian Capital Territory Ambulance Service
AHMAC	Australian Health Minsters' Advisory Council
AHP	Allied Health Professional
AHPRA	Australian Health Practitioner Regulation Agency
AHWMC	Australian Health Workforce Ministerial Council
ARHEN	Australian Rural Health Education Network
AT	Ambulance Tasmania
BCCTPC	Board for Critical Care Transport Paramedic Certification (USA)
BPA	British Paramedic Association
CAA	Council of Ambulance Authorities
CAIPE	Centre for the Advancement of Interprofessional Education
CGF	Clinical Governance Framework
CPD	Continuing Professional Development
CPG	Clinical Practice Guideline
CIAP	Clinical Information Access Program
DHHS	Department of Health and Human Services
ECP	Emergency Care Paramedic
EHS	Emergency Health Services (Canada)
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
GP	General Practitioner
HACSU	Health and Community Services Union
HALT	Hospital Aged Care Assessment Team
HHR	Health and Human Resources
HPC	Health Professions Council (UK)
HWA	Health Workforce Australia
IPE	Interprofessional Education
IPL	Interprofessional Learning
IPP	Interprofessional Practice
IRP*bc*	Interprofessional Rural Program of British Columbia
JEPHC	Journal of Emergency Pre-Hospital Care
MHBHCP	Mental Health and Behavioural Health Capacity Project
MOPD	Multiple Option Decision Point
NHS	National Health Service (UK)
NSW	New South Wales
NREMT	National Registry of Emergency Medical Technicians (USA)
NT	Northern Territory
NZ	New Zealand
OT	Occupational Therapist
PA	Paramedics Australasia
PEPAP	Paramedic Education Programs Accreditation Program
POISE	Program for Outreach to Interprofessional Services and Education in Medically Underserved Areas

PPECA	Patient Empowerment through Community Awareness
PTSD	Post-traumatic Stress Disorder
QAS	Queensland Ambulance Service
QHPC	Queensland Health Promotion Council
RAV	Rural Ambulance Victoria
RESP	Rural and Regional Ambulance Paramedic; Moving beyond Emergency Response
RIPPER	Rural Interprofessional Program Education Retreat
RN	Registered Nurse
SA	South Australia
SAAS	South Australian Ambulance Service
SES	State Emergency Service
SWERF	State-wide Rural Medical Emergency Response Framework (Tasmania)
TAFE	Technical and Further Education
UK	United Kingdom
UTAS	University of Tasmania
USA	United States of America
VCAS	Victorian Civil Ambulance Service
WHO	World Health Organisation

Abstract

There is a long history of collaboration between paramedics and other health care workers; yet little is known about the various ways in which paramedics and different health care professionals interact and convey meaning about an interprofessional approach.

Accordingly, this study investigates interprofessional learning involving rural paramedic practice. Interprofessional learning is a process of integration and synthesis of knowledge between two or more professions, in order to solve problems or explore issues around patient care.

Set across eight rural locations in the state of Tasmania, Australia, this study is an in-depth investigation of interprofessional learning amongst rural paramedics. A constructivist grounded theory (Charmaz, 2006) methodology was employed. Semi-structured interviews based on Critical Incident technique (CIT) were conducted with twenty-six participants, including paramedics, ambulance volunteers and other qualified health professionals. Data were analysed concurrently with, and informed, data generation, progressing through the cycles of initial, focused and theoretical coding based on emerging concepts.

Three main concepts around interprofessional learning and rural paramedic practice were identified: relationships, cooperation and operational barriers. These findings led to the development of *A theory of interprofessional learning and rural paramedic practice*, that provides insight to the contexts and processes of interprofessional learning and paramedic practice in a rural setting. Implications for practice stem from the recognition that in rural health care settings, informal collaboration between paramedics and other health care workers enhances interprofessional learning and contributes to improved patient care. By adopting a proactive and strategic approach, which recognises the importance of these relationships, education providers can introduce programs that support the interprofessional nature of rural practice for paramedics, at both undergraduate and postgraduate level. Ambulance services can identify operational barriers to interprofessional practice and develop ways to eliminate these or minimise their impact.

A limitation of the study was that data were specific to paramedic practice in selected rural settings of Tasmania. Opportunities exist for further investigation outside of Tasmania with larger samples and in other settings, including urban locations and using different methodologies. Further research should be conducted into the policy framework required to enable collaborative practice between different professionals; the processes involved in establishing relationships and cooperation among healthcare providers; and interprofessional differences between models of paramedic practice.

Chapter 1: Introduction to the study

1.1 Introduction

Paramedics are an essential part of the pre-hospital and out-of-hospital environment. They provide emergency care to community members with acute, chronic, medical, social and traumatic conditions. Additional roles developed in response to ongoing health care needs, especially in underserved rural areas, see paramedics also involved in primary health care services in collaboration with other health care providers. Rather than simply working side by side, paramedics and other professionals are involved in interprofessional practice, in which mutual respect and cooperation are aimed at a common purpose of improved health outcomes. Despite these extensive and important roles for paramedics, there are no in-depth qualitative studies or theories that seek to understand the ways by which diverse groups involved in this care interact and convey meaning around an interprofessional approach.

This study examines interprofessional learning (IPL) from the perspective of rural paramedic practice. Interprofessional learning represents a change from thinking and working in individual silos of care. It is a far-reaching concept involving two or more professions working and interacting with a shared vision and purpose in a common learning environment. It may be the product of interprofessional education or may happen spontaneously in the workplace or educational settings (Freeth, Hammick, Reeves, Koppel & Barr: 2005, p. xv). It is a process of the integration and synthesis of knowledge in order to solve problems or explore issues (Parsell & Bligh, 1998, p. 89). This study draws on the following definition of interprofessional learning:

> *… interprofessional learning (IPL) is an overarching term encompassing interprofessional education and interprofessional practice. It is a philosophical stance, embracing lifelong learning, adult learning principles and an ongoing active learning process, between different cultures and professions.*

> *The IPL philosophy supports health professionals working collaboratively in a health care setting. IPL aims to promote purposeful interaction with service users and carers, and quality patient centred care. Learning can be formal and/or informal* (National Centre for Interprofessional Education and Collaborative Practice [NCIPECP] 2019).

This chapter outlines the research aims and research problem. It provides the background for the research and explains how paramedic practice has evolved to encompass working with a range of other professionals, creating an environment supportive of interprofessional learning. After elaborating the research problem and questions raised, the chapter then proceeds to outline the methodological approach used. An account of the significance of the research then proceeds to explanation of researcher reflexivity, an important part of this constructivist grounded theory approach. The final section of the chapter sets an outline for the remainder of the thesis.

1.2 Background to the research

Paramedic practice has traditionally been concerned with the provision of pre-hospital and out-of-hospital emergency medical services in community or industry settings, with the aim of stabilising patients and transporting them to a hospital or health provider for further treatment. This traditional approach to paramedic care has centred on pre-hospital and out-of-hospital emergency medical services, often practiced in isolation from other health professionals.

Globally, there are many advances in extending the role of (particularly rural) paramedics from this traditional approach, to involve greater consultation with other health care providers in the ongoing care for patients in the pre-hospital environment.

In 2000, the United States National Highway Traffic Safety Administrator envisaged the future role of paramedics in that country as one that would be more integrated with the overall health system by undertaking a community-based management role. The potential for rural paramedics in this integrated role re-appeared in a 2004 agenda for the future of rural paramedics in the USA

(Department of Health and Human Services USA, 2004), and a 2005 strategic directions paper on the future of paramedic services in Canada (Emergency Medical Services Chiefs of Canada, 2006). The focus was on integration with the health system and provision of a mobile primary health care service offering activities, such as self-care, injury prevention programs, and social services (Emergency Medical Services Chiefs of Canada, 2006).

In the United Kingdom, several types of extended scope of practice have also come to fruition, with paramedics assessing and treating minor injuries with the aim of reducing hospital transport, working out of medical practitioners' surgeries and supporting primary health care teams and operating from minor injury clinics (Gregory, 2006; Halter & Ellison, 2008; Mason, Coleman, O'Keeffe, Ratcliffe, & Nicholl, 2006; Mason *et al*., 2003; Woollard, 2006)

In Australia, as a result of a nationwide project in the early 2000s that provided federal funding for the establishment of extended care models, there are some paramedics working within primary health care and providing services complimentary to those offered by medical practitioners (Health Workforce Australia, 2014). These 'Extended Care Paramedics' are involved with patient care services, such as ongoing wound care, initiation of antibiotic therapy, urinary catheterisation and in areas such as pathology, chronic and palliative care. These activities, incorporating collaboration with, and activities often done by other professions, emphasise the importance of paramedics in an interprofessional scope of practice. Rather than operate in isolation, paramedics are working with several other professionals, thereby creating an environment conducive to interprofessional interaction (Mulholland, Barnett, & Spencer, 2013).

Such interaction can lead to a process of interprofessional learning (IPL), an overarching concept incorporating both interprofessional education (IPE) and interprofessional practice (IPP). Interprofessional education occurs when, "two or more professions learn with, from and about each other" (World Health Organization, 2010, p. 13). Interprofessional practice occurs when two or more professions are committed to working and interacting together. This interaction is more comprehensive than different professions simply working side by side, it involves working together to achieve a common purpose of health care delivery,

with mutual respect and improved health outcomes (Freeth *et al*. 2005, p. xiv-xv). The learning outcomes from interprofessional education and interprofessional practice occur through a blending of knowledge, skills and attitudes between the various professions involved.

The rural setting offers an ideal environment in which to explore IPL and the relationships between health care professionals in the delivery of care. Rurally oriented interprofessional education has long included a diverse range of professions, such as doctors, nurses, counsellors, physical therapists, dental hygienists, and community health workers (Connelly, Assell, & Peck, 1975). The types of care offered by interprofessional teams in rural areas range from primary health care preventative services, such as general health assessments, childhood obesity programs, information on organ donation, pap smears, road safety campaigns and palliative care (Florence, Goodrow, Wachs, Grover, & Olive, 2007; Kelley, Habjan, & Aegard, 2004). Despite this range of professional services in rural areas, frequency of provision is often limited, and staff shortages can sometimes lead to a blurring of roles across boundaries (Grigg, 2001, p. 144).

Collaborative care incorporating rural paramedics has developed over many years. For example, in the United States in the mid-1990s expanded scope programs for paramedics; involved nurses training paramedics to perform tuberculosis (TB) screening and providing immunisations in their local areas (Garza, 1994b); and training and working with physicians, midwives, and nurses, and practicing extra skills such as relocation of extremities, examination and treatment of eye injuries, ear irrigation, naso-gastric and urinary catheter placement, and basic counselling skills (Shoup, 1995, p.46).

Later, roles for rural paramedics developed further. New roles in Canada now see paramedics administering flu vaccinations, conducting health care clinics, preventative education sessions and other primary health care initiatives (Martin-Misener, Downe-Wamboldt, Cain, & Girouard, 2009; Misner, 2005).

In rural New York state, paramedics provide collaborative home-based assessment, and care for elderly adults who access emergency medical services. Health screening by paramedics have resulted in home visits from nurses or social

workers, with further evaluation in the fields of vaccinations, advanced directives, formal and informal support services, nutrition, activities of daily living, depression, alcohol and drug abuse, falls, cognition, medication, and home safety (Shah *et al*., 2010).

In Australia, similar developments have occurred. Collaborative care in rural Australia is diverse and can range from paramedics working with other professions in the hospital environment, to involvement in health care planning in the pre-hospital environment (Mulholland, O'Meara, Walker, Stirling, & Tourle, 2009). In the state of South Australia, paramedics work from rural hospitals under the remote guidance of an ambulance service medical officer when no local medical practitioners are present. In the state of Victoria, specialist paramedics known as Paramedic Community Support Coordinators work in close collaboration with local hospitals. In the state of Tasmania, rural paramedics work informally with other health practitioners to promote best patient care outcomes (Mulholland, *et al*. 2009). One 2012 review of Tasmanian rural health facilities notes the potential of an interprofessional role for remote areas. It suggests a greater focus on interprofessional engagement and learning might lead to interest in expanded paramedic roles (Department of Health and Human Services, 2012, p. 39). In order to achieve sustainable levels of utilisation of clinical staff in fluctuating or low rural populations, trialling of interprofessional work models between Area Health Services and Ambulance Tasmania was a key area for consideration (Department of Health and Human Services, 2012, pp. 53-54).

The resultant synergy of education and practice between various professions, (and incorporating rural paramedics) is synonymous with interprofessional learning as a process of integration and synthesis of knowledge that may happen spontaneously in the workplace or as a result of educational interventions (Freeth *et al*., 2005, p. xv; Parsell & Bligh, 1998, p. 89). It is representative of an active learning process between different professions that supports collaborative working in the various health care settings (NCIPECP, 2019).

1.3 Research problem

Although paramedic practice incorporates partnership and collaboration with other professionals, little is known about the ways by which diverse groups involved in this care interact and construct meaning about an interprofessional approach. There is limited evidence of interprofessional activity incorporating paramedics in the literature, and this is descriptive rather than explanatory.

Various government programs and reports examine different workforce models and training approaches to help address the needs of rural communities; however, again, representation in literature remains largely descriptive. What works about the interprofessional nature of these initiatives and what inhibits them is largely unknown, hence the timely need for this study.

Largely absent from the paramedic narrative is a theoretical approach to help define the nature of paramedic practice and interprofessional learning. Partnership and collaboration between professionals suggest that power may be an intrinsic part of these relationships. However, there is scant knowledge about the nature of power, interprofessional learning and paramedic practice. Whilst remaining at a descriptive level, paramedic literature falls short of being able to offer explanation on what influences interprofessional learning, or what impact this learning has on professional interaction or patient care.

1.4 Research aim

By examining interprofessional learning and paramedic practice in rural areas, this study aims to address gaps in the reported literature and create new knowledge in this area. The purpose of this research is to investigate interprofessional learning involving rural paramedic practice in terms of interaction, learning outcomes and patient benefit. In doing so, new models can be generated by which to understand interprofessional learning and develop recommendations for paramedic practice and health service delivery that can contribute to enhanced knowledge of interprofessional learning.

1.5 Research Questions

In order to address the research problem and examine ways by which different groups involved in the process of paramedic practice interact and construct meaning about an interprofessional approach, three research questions are posed:

1. **From a rural paramedic perspective, how do workers from different professional backgrounds understand, interact and construct interprofessional relationships?**
2. **To what extent does the nature of power influence interprofessional learning in the rural setting?**
3. **What key implications present for the paramedic profession and interprofessional learning in the rural setting?**

1.6 Overview of study approach

The next section is an overview of the study approach. It first provides an outline of constructivist grounded theory, the qualitative approach used in this study, before describing the participants who took part, the generation of data and the construction of theory. The methodological approach is discussed in detail in Chapters 4 and 5.

1.6.1 Constructivist grounded theory

This study employs constructivist grounded theory to guide the examination of how the interactions between paramedics and other professionals inform IPL. Constructivist grounded theory is relevant to this purpose as it is the first-hand accounts from participants (obtained through semi-structured interviews, field notes and memos) that enable documentation of their lived experiences and interactions to retrieve rich stories of paramedic practice and interprofessional learning.

The study investigates the interactions, learning outcomes and patient benefits that may be associated with interprofessional learning and rural paramedic practice. As such, constructivist grounded theory provides not only a means by which to conduct this investigation and to find out "what is happening", but has the ability to examine how social, historical, temporal, and situational contexts affect definitions and explanations (Charmaz, 2017, p. 39). Constructivist grounded theory

encourages exploration of the created space for shared understanding developed by practitioners in interprofessional practice. It lifts interprofessional learning and rural paramedic practice from the what to the why.

Constructivist grounded theory takes a reflexive stance to the research process and products and considers how theory evolves through interpretation of meaning and action (Charmaz, 2006, p. 131). In the constructivist approach, data generation acknowledges and encourages examination of research relationships, situations and representation of research participants, and includes reflexivity about the researchers' standpoints and evolving viewpoints during the research process (Charmaz, 2006, p. 131).

The use of constructivist grounded theory to investigate paramedic care and IPL forged new ground, as this was not previously a methodology commonly used for investigation of rural paramedic practice. The use of grounded theory, relating to interprofessional activity and paramedic practice, has been limited to few settings; for example, gaining insights into a GP referral system in the UK involving paramedics (Blodgett, Robertson, Ratcliffe, & Rockwood, 2016) and how villagers in socially deprived and mine infested villages in Iraq experienced the establishment of paramedic and first responder teams (Wisborg, Murad, Edvardsen, & Brinchmann, 2008).

Further, the approach has been used to examine collaborative practices and relationships amongst other health professions, including:

- medical practitioners and pharmacists (Rieck 2014); mental health workers (Ren *et al*. 2016);
- community-based physicians and chiropractors (Mior, Barnsley, Boon, Ashbury & Haig, 2010);
- clinical staff and patients in rural hospitals (Casimiro, Hall, Kuziemsky, O'Connor &Varpio, 2015);
- staff in stroke care units (Clarke, 2010);
- palliative care workers, patients and families (Ho, Jameson & Pavlish, 2016);

- nurse practitioners and other staff (Hurlock-Chorostecki, Forchuk, Orchard, Van Soren & Reeves, 2014); and
- nurses and doctors (Leever *et al*. 2010).

1.6.2 Participants

This study draws on participants from the state of Tasmania, Australia. This was a purposeful move designed to capture a wide representation of different ways by which paramedic interaction takes place. At the time of the research, several models of rural paramedic practice were in operation. These include:

- hospital-based services where health professions other than paramedics (for example, nurses) were trained by paramedics to deliver paramedic care;
- where ambulance volunteers responded both independently and in conjunction with salaried paramedics; and
- extended care roles where the main function of paramedics was to provide home based care and avoid hospital transport where appropriate.

The research setting of Tasmania allows for not only capturing different models of practice, but also different types of rural classification. Inclusion as a site in this study involved determinants of rural ratings on the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA) classification scale (Australian Government Department of Health and Ageing, 2009), with sites ranging in classification from inner regional to very remote.

1.6.3 Data generation

The stories (Charmaz, 2006, p. 29) around IPL and paramedic care emerged through semi-structured interviews conducted with participants, and via memos and field notes made during the research process.

The main data generation involved semi-structured interviews based on the use of Critical Incident Technique (CIT), a research method aimed at improving practice, and suited to the examination of significant behaviours. A ‘critical incident’ is a defined event, “the person involved can judge positive or negative elements of the event, and the behaviour observed makes a significant contribution to the aim of

the activity" (Flanagan 1954, p. 338). Participants were asked to describe effective and less effective elements of episodes (that is, 'critical incidents') where they had collaborated with other professionals. The results of CIT, in combination with a grounded theory approach, creates a picture of how paramedics interacted with other professionals.

Other data generation included memos and field notes.. The relevance of memos is a crucial part of this grounded theory. Memos are a way of keeping involvement in the analysis, thereby helping to develop the reality of codes into theoretical constructs (Charmaz 2006, pp. 5-6). This combination of data gathering provides a multiple methods approach in building a picture of paramedic care and IPL and enhances the credibility of this study (Lincoln and Guba 1985).

1.6.4 Construction of theory

Following constructivist grounded theory this study adopts stages of first (initial) and focused coding, from which main concepts and categories can be determined.

Strengthening the coding process was a procedure of constant comparison of similarities and differences in data. Tied to this constant comparison was theoretical sampling. With theoretical sampling, developing concepts from ongoing data generation and analysis drove the investigation to seek further information that can either strengthen or refute emerging theory (Charmaz 2014, p. 100). The process of analysis continued using constant comparison of codes as they emerged, and a saturation point of information was determined by theoretical sampling where investigation continued until completion of theoretical concepts.

1.6.5 Ethics approval

This study received ethics approval through The Tasmania Health and Medical Research Ethics Committee (H00130350). Further approval was received from Ambulance Tasmania, in addition to permission from local hospital directors to approach potential participants.

1.7 Significance of the research

Although investigation of interprofessional learning among other health professionals is not new territory, it is not a common feature in paramedic literature. Indeed, formal recognition of the paramedic profession in Australia is only relatively recent. Formal drives to include paramedicine as a recognised health care profession in Australia only began to gain a foothold in the mid 2000's. At the time of the 2012 *Consultation Paper: Options for Regulation of Paramedics*, there was no national regulation or registration of Australian paramedics (Australian Health Ministers' Advisory Council, 2012, p. 3). It was only from December 2018 that registration for paramedics in Australia was formalised (Paramedicine Board of Australia, 2018). This study is timely in recognising the contribution that paramedics make toward collaborative health care practice, and the implications this has for interprofessional learning.

This study contributes new information around previously unexamined and unknown interprofessional interactions that incorporate paramedics. The research questions (see Section 1.5) provoked investigation of interprofessional learning involving paramedics in terms of interaction, learning outcomes and patient benefit. This is significant in that the work is greater than a statement of new information; rather, it identifies and explains the ways paramedics interact with their rural colleagues, in a process of interprofessional learning. It is this explanation (Glaser & Strauss, 1965, p. 3) that turns descriptions of practice into a theory of IPL and paramedic care.

The unique use of grounded theory, in combination with Critical Incident technique (CIT), reveals effective (and less effective) incidents where paramedics have collaborated with other professionals. According to the literature to date, this has not been employed as a methodology in this specific context.

1.8 Situating the researcher

In line with constructivist grounded theory, the researcher was situated firmly within the research process (Charmaz, 2006, p. 180). The researcher has extensive personal knowledge and experience of paramedic practice and health care and was able to

bring this to the project, whilst simultaneously being open to new and emerging ideas.

Initially training and working as a registered nurse in the early 1980s, the researcher is an intensive care paramedic with over 30 years practice across two states, in both rural and urban locations, in Australia. This provides the researcher with a clear understanding of and insight into the respective participants contributions; first during the interview process, and later as part of data analysis. Researcher reflexivity (the ways in which the researcher potentially influences the research) ensured the researcher made this explicit to his participants (Gentles, Jack *et al*. 2014, p. 1) and this bought an important element to the study approach. Researcher reflexivity is different from the researcher imposing personal meanings on the data and findings. It acknowledges the role of the researcher in the study, and how their personal background can hold potential for shaping interpretations (Creswell, 2014, p. 185-186).

The interpretation and shaping of meaning only forms one part of reflexivity. It is crucial to address any influences the researcher may have. During the initial stages of gaining ethics approval, it is noted that a control/power issue could exist with the interviewer (who, at that stage, was in a clinical/supervisory role in Ambulance Tasmania). This necessitated reassuring participants that the researcher was conducting the study as part of a PhD at the University of Tasmania, and the design and findings of the study were independent of Ambulance Tasmania. Should participants indicate they were uncomfortable about participating, because of this potential issue, or had concerns with privacy and anonymity, the study supervisors agreed to assist with the interview process. Participants were also informed of the right to withdraw at any stage. These situations did not arise.

1.9 Outline of the thesis structure

This thesis consists of eight chapters, as shown in Figure 1.1.

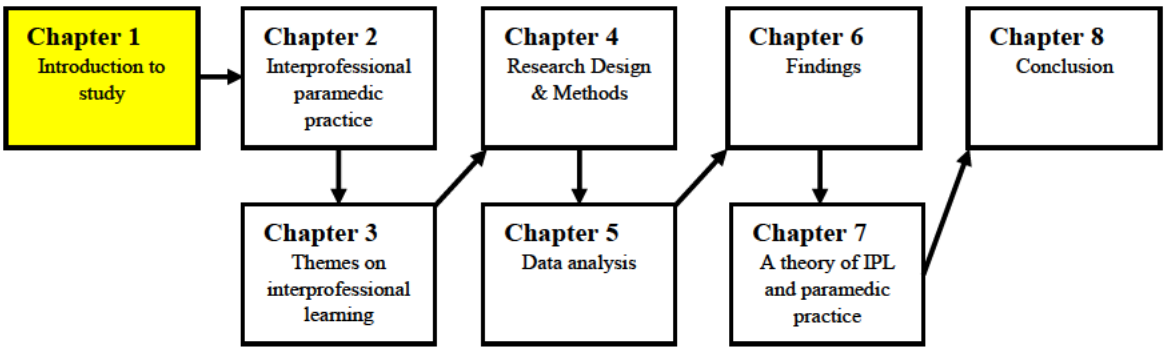


Figure 1.1 Structure of thesis by chapter

This thesis presents as a living document with ideas and findings treated as current. The use of present tense expresses this currency, although some past activities appear in the appropriate tense to indicate process.

This, the introductory chapter provides a background to interprofessional learning and paramedic practice; identifies the research problem; and poses three research questions. The chapter also outlines an overview of the study approach and states the significance of this project, before a brief discussion on reflexivity and the position of the researcher in this study.

Chapters 2 and 3 present a comprehensive review of literature to provide context for the research. Chapter 2 first outlines the development of paramedic roles in general, before moving to a focus on a rural perspective. A description of paramedic practice then expands to examine different cultural aspects of paramedic care, including the management/operation divide, emergency response, and interprofessional practice. Framing the paramedic as a professional, the chapter then illustrates how paramedic professionalism has developed and locates the rural paramedic as an interprofessional practitioner.

Chapter 3 extends this discussion from paramedic practice to specific themes around interprofessional learning. The rural focus continues, and the chapter highlights specific gaps in the literature around interprofessional learning and paramedic practice.

Resulting from a synthesis of the information raised in chapter 3, chapter 4 commences by presenting three research questions. Chapter 4 then provides explanation of the research design, strategies and methods adopted in this study. The chapter explains the constructivist paradigm employed as part of this qualitative study. The chapter advances the use of constructivist grounded theory as a strategy of inquiry and its use in this study. Preceding the methods section in this chapter is a comprehensive discussion of Critical Incident technique as key means of data generation.

Chapter 5 details the process of data analysis. In line with constructivist grounded theory, information other than interview data gathered includes memos and field notes made by the researcher. Analysis incorporates consistent comparison of data, and theoretical sampling, where emerging concepts drove further investigation. Chapter 5 outlines the coding process and data analysis, and presents results from initial and focused stages of coding. The final section of this chapter introduces the main themes revealed through the analytical process, and explains the process of theory development.

Chapters 6 and 7 present and discuss the research findings. Chapter 6 presents the categories and main themes revealed through the analytical process by describing results in terms of the participants own voices. It concludes by providing a theory of interprofessional learning and paramedic practice.

Chapter 7 examines this theory in detail and elaborates on the findings and offers a theoretical interpretation of the incidents of paramedic practice and interprofessional learning. Following a constructivist grounded theory approach, whereby the questions of what people assume is real and how they construct and act on this reality is to the forefront (Charmaz, 2006, p. 125-126). This researcher's own experience and interpretive perspectives are merged with relevant literature, and acknowledge prior theoretical works to inform the discussion of results. Chapter 7 addresses research questions 1 and 2.

Chapter 8, the conclusion, summarises responses to each research question, and ways in which this research adds to knowledge around interprofessional learning

and paramedic practice. The chapter outlines strengths and limitations, including methodological contributions.

1.10 Chapter summary

Paramedics are at the front line of care in the prehospital and out-of-hospital setting. They provide a range of care and services and operate in collaboration with other health care providers. This is particularly evident in rural areas, which see paramedics involved in primary health care. Despite being involved in collaborative practice, little is known about interprofessional learning and paramedic practice. There are no in-depth qualitative studies or theories that seek to understand the ways by which diverse groups involved in this care interact and convey meaning around an interprofessional approach.

This study examines interprofessional learning (IPL) from the perspective of rural paramedic practice. By employing a constructivist grounded theory approach, it places rural paramedics at the centre of the research and contributes to understanding of interprofessional learning, by explaining how rural paramedics construct and make sense of the collaborative partnerships they form.

This chapter introduces the research topic and provides an overview of current research in this field. It provides a background to interprofessional learning and paramedic practice; identifies the research problem; and proposes three research questions. The next chapter (*Interprofessional paramedic practice*) is the first part of a two-chapter literature review of paramedic practice and interprofessional learning.

Chapter 2: Interprofessional paramedic practice

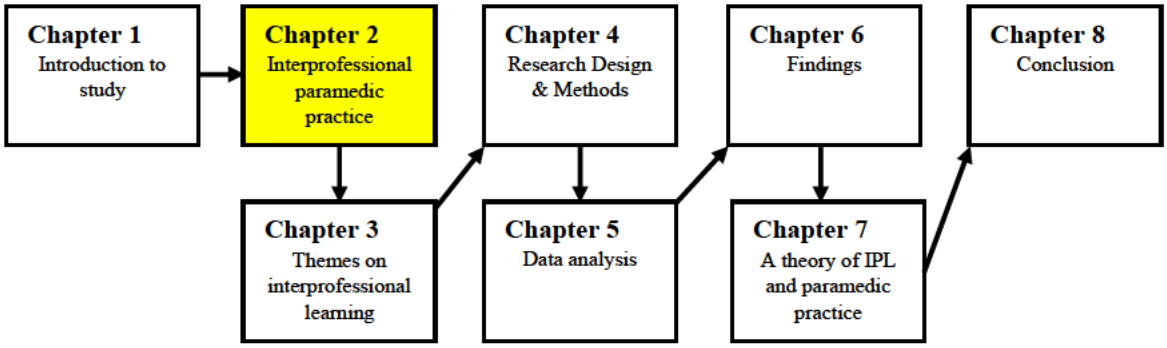


Figure 2.1 Thesis map, Chapter 2

2.1 Introduction

Chapter 1 provides a definition of interprofessional learning as a process of integration and a synthesis of knowledge between two or more professional groups, in order to solve problems or explore issues related to patient care. This study employs a grounded theory approach to develop an understanding of the interactions that take place within that learning. To undertake this, the first stage is to develop an understanding of the paramedic profession, the people within it, how it has developed, and the advances toward working with and learning from other professionals.

In order to situate paramedic practice within a process of interprofessional learning this chapter compares past historical developments in the field with more contemporary examples of practice. In doing so, the chapter not only discusses links between paramedic practice and interprofessional learning, but also situates the study in social, historical, local and international contexts, and strengthens the use of grounded theory (Charmaz, 2006, p. 180).

Section 2.2 explains the development of paramedic roles, concluding with a focus on roles from a rural perspective. Descriptions of paramedic practice are then expanded in Section 2.3 to examine cultural foundations of paramedic care. Three key areas are identified: 1) a management/operation divide, 2) emergency response, and 3) interprofessional practice.

In Section 2.4, discussions of the ways paramedic professionalism has developed includes themes, such as practice, education, regulatory frameworks, industrial regulation and general perceptions of paramedic practice. Section 2.5 places the rural paramedic as an interprofessional practitioner, before a summary concludes the chapter.

2.2 The evolution of paramedic roles

This section provides a general overview of the development of paramedic roles and draws largely, but not solely, on the Australian experience to orient the setting of this study. It includes descriptions of the paramedic profession in Australia, from basic first aid training for a select group of workers, to a provision of emergency care by trained professionals. By providing this overview, the background is set by which to understand how paramedic roles have evolved, from practice by sole practitioners, to ones that incorporate an approach whereby both education and practice aims toward interprofessional care.

2.2.1 What is a 'paramedic'?

A problem in paramedic-based literature is the differing terminology used to describe paramedic services. Terms include 'paramedic', 'ambulance officer', 'intensive care paramedic', 'advanced life support', 'pre-hospital', 'emergency medical technician', and extended scope paramedic' (Mulholland, 2010, p. 21). Different countries may have different meanings attached to the term 'paramedic', particularly when considering different clinical and professional skill sets. In Sweden for example, nurses receive special education to conduct pre-hospital work as 'paramedics' (Gustafsson, Wennerholm, & Fridlund, 2010; Svensson & Fridlund, 2008; Wahlin, Wieslander, & Fridlund, 1995; Wallin, Fridlund, & Thorén, 2013).

In a previous study undertaken by the researcher, the term 'paramedic' was used to mean a professional ambulance employee trained to the level of advanced life support or intensive care; this includes advanced drug therapy and airway maintenance (Mulholland, 2010, p. 21). Numerous studies reveal the extension of paramedic practice from advanced life support or intensive care to include activities, such as community support, education of volunteers, working with other health

professionals, and working from within hospitals and health centres (Cooper, O'Carroll, Jenkin, & Badger, 2007; Cooper & Grant, 2009; Garza, 1994b, 2007; Jay, 1996; Mulholland, 2010; Mulholland *et al*., 2009; O'Meara, 2003a, 2003b; O'Meara et al., 2006; Woollard, 2006). In December 2018, paramedicine in Australia was formally regulated as a profession under the Australian Health Practitioner Regulation Agency (AHPRA), and the term 'paramedic' in Australia obtained some formal clarity, with only those practitioners registered with AHPRA being permitted to be known as paramedics (Paramedicine Board of Australia, 2018).

Despite more recent development, registration with AHPRA does not capture the whole gamut of pre-hospital care where ambulance services train other practitioners to administer care alongside, or in place of registered paramedics. At the time of writing this thesis, both volunteers and nurses provide care as recognised members of various ambulance services, not only in all states of Australia, but internationally. When investigating a topic of interprofessional learning it is important to consider all professionals involved. This study and thesis uses the term 'paramedic' to describe those persons who have undertaken recognised education to perform pre-hospital care. The term includes not only advanced life support or intensive care qualified staff, but also volunteers, and other relevant professionals, such as nurses.

Where the term 'volunteer' appears in conjunction with 'paramedic' or 'ambulance' (for example 'volunteer paramedic' or 'volunteer ambulance officer') it is within the Australian context. In Australia, volunteers with paramedic services generally undertake vocational training in order to provide a basic level of care, which may include defibrillation and a limited range of drug therapy (Fahey & Walker, 2002, pp. 8-14). This study and thesis use the definition of 'volunteering' as follows: it is the "act of providing unpaid effort to parties to whom the worker owes no contractual, familial, or friendship obligation" (Stirling, 2007, p. 18).

2.2.2 Changing roles

An examination of the Australian experience in the development of early paramedic education and practice puts forward the evolution of paramedics as interprofessional health care practitioners. Significant in this evolution is the movement from basic

first aid training to educational and operational processes involving new roles that incorporate working with a variety of professionals.

Formal first aid training began in Australia in the early 1880s with St John Ambulance training for a group of railway workers in Sydney and army medical troops in Melbourne. In the early 1890s, Australia comprised six colonies, and each colony had its own St John Centre offering specialist first aid training to groups that would most respond to need (such as police, firemen and the military). In an historical introduction to the Australian ambulance system, Howie-Willis (2009) uses the Victorian service as a classic case of ambulance development across the country. By1910 in Melbourne, the first motor ambulance helped meet demand, with the ability to cover longer distances, some as far as 185 kilometres. Education to this stage was minimal, with most crews little more than semi-skilled 'stretcher bearers' or drivers; the primary qualification for employment was the ability to drive a horse-drawn or motor vehicle. Completion of a St. John Ambulance first aid certificate, or experience in an Army Medical Corps, a St. John Ambulance Brigade division or a Railway Ambulance Corps were additional qualifications. The cross-membership of such organisations ensured a level of first aid knowledge and patient care that was otherwise unavailable through formal education. In 1916, the Victorian Civil Ambulance Service (VCAS) emerged as a separate structural and legal entity to St. John Ambulance, due to the rising costs associated with running an ambulance service (although both organisations continued to be intermixed for a further six decades) (Howie-Willis, 2009, pp. 8-10).

Not until 1973 did the Victorian State Government assume full control of ambulance operations and formally rename and restructure these ambulance operations under the title of 'Ambulance Service Victoria'. In 1986, the *Ambulance Service Act 1986* established the Metropolitan Ambulance Service and five rural services, collectively as 'Ambulance Victoria'. Similar developments appeared in other Australian states, for example:

- the *Queensland Ambulance Act 1991* formalised the Queensland Ambulance Service (QAS);
- the formation of a statewide New South Wales Ambulance Service followed the *Ambulance Services Act 1972*;

- the St John Ambulance Council for South Australia passed control to the State Government in 1995 to form the South Australian Ambulance Service; and
- in Tasmania, the withdrawal of St John Ambulance in 1965, lead to the establishment of the Tasmanian Ambulance Service (Howie-Willis, 2009, pp. 3-20).

Pertinent to the setting for this study, ambulance services in Tasmania were one of the first in Australia to move from a sole volunteer basis under St John Ambulance, to the Government run Tasmanian Ambulance Service (now Ambulance Tasmania) (Howie-Willis 2009). However, several rural localities still ran hospital-based ambulance services independent of Ambulance Tasmania. At the time of writing, only one rural site represented this type of service, and overall management of the service and education of hospital staff to provide pre-hospital care was the responsibility of Ambulance Tasmania. Some rural and remote areas maintained a presence of volunteer coverage, often with the assistance of paramedics. An extended care paramedic program commenced in Tasmania as part of federal government initiative to trial this model of paramedic practice (Thompson, Williams *et al*. 2014).

The movement toward an ambulance profession in Australia is more than consolidation of services through various legislated state Acts. Industrial action in most states in Australia from the late 1960s onward also influenced the sector. Many ambulance services used a mixture of volunteer crews and salaried staff, after evolving from the St John Ambulance Service volunteer model. Eventually salaried staff began to see volunteers as both a threat to their own jobs and diminishing their abilities to negotiate with management on any dispute. In their eyes, volunteers became a hindrance to establishment of a true profession (Howie-Willis, 2009; Schilling, 2003).

Industrial unrest in Victoria in 1973 led to a review of the then Victorian Civil Ambulance Service management system, which laid the foundation for the formation of Ambulance Service Victoria, and the removal of volunteer crews from duty rosters in metropolitan and larger regional centres Most other states began to follow suit. As late as 1989 in South Australia, the use of volunteers to break strike

action by salaried staff led to criticism of the St John Ambulance Council for South Australia (Schilling, 2003, p. 33). This resulted in a handover of control to the State Government; by 1995 the South Australian Ambulance Service became the new ambulance agency (Howie-Willis, 2009, pp. 17-18).

These significant developments in ambulance service in Australia also led to the perception that no longer were ambulance crew members simply 'stretcher-bearers' or 'drivers', but salaried professionals; along with this came organisational support and provision of more comprehensive education. South Australia, where some of the later and more militant union action emerged, was also an early leader in standards of paramedic education. Here, in 1979, there was a move toward paramedic education conducted through TAFE (Technical and Further Education) institutions (Brooks, Grantham, Spencer, & Archer, 2018; Howie-Willis, 2009, p. 17), while most employer groups conducted 'in house' courses. Since 1994, stand-alone paramedic education has found footing in the university sector; further, several joint paramedic/nursing degrees have appeared in Australian Universities (Brooks *et al*., 2018; Charles Sturt University, 2006; Edith Cowan University, 2009; Lord, 2003; Monash University, 2019; Queensland University of Technology, 2018).

The development of paramedic practice has not occurred in the absence of organisational support, and main professional organisations representing paramedics in Australia have seemed to agree on the importance of education and training for paramedics. These organisations are the Council of Ambulance Authorities (CAA) and Paramedics Australasia (formerly Australian College of Ambulance Professionals, ACAP).

The CAA (whose Directors are the senior representative of each state and territory ambulance service in Australia) is active in the development of national education standards and establishing the means to accredit education providers (Council of Ambulance Authorities, 2008; Patrick, 2007). Paramedics Australasia (PA), whose voluntary members are paramedics throughout Australia, is active in the promotion of continuing education for paramedics. PA members gain information on developments within the paramedic profession by means of a quarterly publication (*RESPONSE Magazine; https://www.paramedics.org/response-magazine*), a peer reviewed journal (*Australasian Journal of Paramedicine;*

https://ajp.paramedics.org/index.php/ajp) and a yearly National conference with peer reviewed presentations. Paramedics Australasia actively pursues scholarships and funding for paramedics to undertake further education.

Not only were paramedics moving toward a more professional approach to patient care with these organisational and educational changes, but changes to the scope of practice were also appearing. In recognition that paramedic services had incorporated more than a singular emergency care scope to paramedic practice, one Australian academic identified several different types of traditional paramedic practice. O'Meara's (2002) extensive study uses a systems approach to examine rural ambulance locations across the state of Victoria, and incorporated mixed methodology with interviews, surveys, and questionnaires, as well as ambulance case and operational documentation.

O'Meara (2002) examines responses from not only paramedics, but also other health professionals, ambulance management, and community members, and proposes several different labels for types of paramedic practice, four of these being 'Competitive', 'Expert', Sufficing' and 'Community'. 'Competitive' paramedic services operate to meet financial demands. In Government-run services, this meant budget allocation being dependent on meeting set response times, or fleet maintenance (O'Meara, 2002, p. 269).

Pre-hospital care for the 'Expert' paramedic involved working for a service in which prioritise advanced technology, skills and equipment. Clinical evidence was paramount in the development of means to provide efficient and effective treatment of illness and injury (O'Meara, 2002, p. 278).

O'Meara (2002) suggests that the 'Sufficing' type of paramedic practice best represents Australian practice. Here is a minimum level of acceptable care and a premise of entitlement for all people to basic services; however, this incorporated negotiation and management of conflict between competing interests. O'Meara gives the example of union action in Victoria, which helped introduce an Advanced Life Support program for paramedics (O'Meara, 2002, p. 278).

The minimum level of acceptable care referred to by O'Meara (2002) did not necessarily mean salaried paramedic care, with large areas of Australia serviced by

volunteer ambulance personnel. It was suggested in a 2002 Australian report into a national strategic planning framework for volunteer ambulance officers, that this volunteer contribution could be worth as much as $29 million in Australia; but might also be as much as three times that (Fahey & Walker, 2002, p. iv). The volunteering aspect specifically appeared with O'Meara's (2002) proposal of a 'Community' type of paramedic practice, where a community-controlled and -operated ambulance service met the demands and needs of a local community, sometimes, but not exclusively, with the assistance of a salaried paramedic (O'Meara, 2002, p. 289).

A common theme of O'Meara's (2002) types of practice is a focus on the traditional example of a request for paramedic attendance, and expectation of transport to hospital. However, paramedic practice worldwide has long been challenging this traditional view with extensions to conventional practice. In the United States, a report by Neely *et al*. (1997) proposes that paramedics are able to work under a set of guidelines that would see ambulances doing less transport, whilst arranging alternative pathways of care (pp. 797-799). The authors refer to this model of practice as Multiple Option Decision Point (MOPD), and within a short timeframe, similar versions appeared in literature from other countries, such as the United Kingdom. One UK study suggests a two-tiered system of paramedics with an increased skills base, and technicians that respond to varied categories of calls (Hassan & Barnett, 2002, pp. 157-158).

This extension to the traditional practice of treat and transport, often known as a 'practitioner' model of paramedic practice, has appeared in several countries. O'Meara (2002) also makes mention of the 'practitioner' model and suggests that the paramedic 'practitioner' incorporates qualities of the 'expert', 'sufficing', and 'community' types of practice (O'Meara, 2002, p. 308). Paramedic 'practitioners' began to appear as early as 1995 in the USA where, training as community health specialists, paramedics could treat patients on site and discharge them from care, thus avoiding unnecessary trips to hospital (Shoup, 1995).

This type of community intervention also appeared in Canada where paramedics with an increased scope of practice have incorporated more complex activities, such as wound care, falls prevention, and a medication compliance scheme

(Martin-Misener *et al*., 2009; Misner, 2005; Raven, Tippett, Ferguson, & Smith, 2006).

In the United Kingdom, there is evidence of several types of extended scope of practice, with paramedics assessing and treating minor injuries with the aim of reducing hospital transport, working from medical practitioner surgeries and supporting primary health care teams, and operating from minor injury clinics (Gregory, 2006; Halter & Ellison, 2008; Mason *et al*., 2006; Mason *et al*., 2003; Woollard, 2006).

In Australia there too has been the introduction of some formal extended care programs. The introduction of one such program in Tasmania was due to a Federal Government initiative to increase the choices of people not requiring hospital transport, and to cater for low risk patients, such as those requiring chronic wound care or urinary catheter change. In a one-year period from April 2013, the extended care paramedics had demonstrated a transport rate of 31% as compared with over 75% for regular paramedic crews (Mulholland, 2014, pp. 37-38).

The emergence of extended practice for paramedics beyond the traditional emergency response in effect meant new roles for paramedics, and new roles presented a range of terminology. However, despite interchangeable terminology, such as ‘extended scope of practice’, and ‘paramedic practitioner’, the ‘practitioner’ role has lacked standardisation across controlling institutions. Examples of extended scope of practice from the United Kingdom refer to ‘Emergency Care Practitioners, or ‘Paramedic Practitioners’. Education for ‘Paramedic Practitioners’ is specifically aimed at determining alternative pathways to treatment, rather than routine transport to hospital (Mason *et al*., 2003, p. 197).

‘Emergency Care Practitioners’ have been trained to work from medical practitioner surgeries, support primary health care teams, attend unscheduled home visits, and arrange hospital admissions, with time divided between local minor injury units and ambulance stations (Cooper *et al*., 2004, pp. 616-617; Halter & Ellison, 2008, p. 1; Woollard, 2006).

What is common to all is an extended scope beyond the pre-hospital emergency care response of traditional paramedic practice. What is significant is the

capacity of these new roles to incorporate working with a variety of other professionals in the delivery of patient care, and the implication this has for an interprofessional approach to this care.

2.2.3 A rural perspective on paramedic roles

Although much of the literature around new extended care roles for paramedics, and collaborative practice with other health practitioners, began to appear in the early to mid-2000s in the UK (Cooper *et al*., 2004; Halter & Ellison, 2008; Mason *et al*., 2003; Woollard, 2006, 2007), earlier references to professional collaboration involving rural paramedics had appeared in the United States in the mid-1990s. Garza (1994b) describes an expanded scope program in rural Texas for paramedics, whereby nurses trained five paramedics to perform tuberculosis (TB) screening and work toward providing immunisations in their local areas.

Similarly, Shoup (1995) reports that paramedics in New Mexico participated in what was termed 'cross training', with a curriculum developed and conducted by physicians, midwives, and nurses, in extra skills such as relocation of extremities, examination and treatment of eye injuries, ear irrigation, naso-gastric and urinary catheter placement, and basic counselling (Shoup, 1995, p. 46).

Both Garza (1994b) and Shoup (1995) present descriptions of purportedly successful programs, rather than studies; however, both illustrate a foundation for, at the least, interprofessional education among paramedics, drawing upon the expertise of other disciplines to build a professional knowledge base.

Over ten years later, specific new roles for rural paramedics were developed in both the USA and Canada. In the early 2000s and in recognition of the limited accessibility to health care on Long and Brier islands in Nova Scotia, permanent placement of paramedics occurred on Long Island with the purpose to provide 24-hour emergency health care coverage. Driving the project were concerned community leaders who lobbied the Emergency Health Services (EHS) for improved access to primary health care services. The EHS decided on better utilisation of paramedics in the area and this now sees paramedics administering flu shots and conducting health care clinics. A nurse practitioner also works with paramedics in

community preventative education sessions and other primary health care initiatives (Martin-Misener *et al*., 2009; Misner, 2005).

In rural New York State, paramedic education in geriatric care provides collaborative home-based assessment, and care for elderly adults who access emergency medical services. Health screening by paramedics has resulted in-home visits from a nurse or social worker with further evaluation in the fields of vaccinations, advanced directives, formal and informal support services, nutrition, activities of daily living, depression, alcohol and drug abuse, falls, cognition, medication, and home safety. An unexpected side effect of this interprofessional activity is the identification of otherwise unknown individuals with unmet healthcare needs (Shah *et al*., 2010, pp 2208-2210).

In Australia, a major investigation of rural paramedics across three states during 2005-2006 reveals both formal and informal extension of practice from traditional models. The *Rural and Regional Ambulance Paramedic; Moving Beyond Emergency Response* (RESP) report notes that in South Australia, paramedics work from rural hospitals under the remote guidance of an ambulance service medical officer, in the absence of local medical practitioners (O'Meara, *et al.*,2006).

In Victoria specialist paramedics known as Paramedic Community Support Coordinators work in close cooperation with local hospitals; in Tasmania, informal practice sees paramedics work closely with other health practitioners to promote best patient care outcomes (O'Meara *et al*., 2006, pp. 19-36). These extensions to practice occur in response to local health care needs, such as the absence of full-time medical practitioners, and are strong indicators of interprofessional practice. In addition to investigation across several states, O'Meara *et al*., (2006) also uses information from various professions. For example, the Tasmanian case study consists of interview data with paramedics, ambulance volunteers, police, medical practitioners, nursing staff, council employees and a radiographer.

Again, from Australia, was one study that compared the activities of both rural and urban paramedics. Mulholland (2010), in a case study investigation of differences between rural and urban paramedics, records several themes which seem unique to rural paramedics. The author suggests rural paramedic practice did not

necessarily mean ‘extended’ or ‘new scope’, but simply that rural paramedics differ in overall practice from urban paramedics. This Australian study, albeit only of Tasmania, states rural paramedics:

- practice a community response, rather than a case dispatch response;
- are multidisciplinary team members, rather than solely ambulance team members;
- are educators and managers of volunteers rather than clinical supervisors; and
- are isolated health care workers, rather than having access to full resources (Mulholland, 2010, p. 141).

Of these themes, the first two indicate a close alliance between rural paramedics and other professions. In practicing a community response, rural paramedics operate with community groups, and in a primary health care role for public health promotional activities. With the multidisciplinary team aspect of care, rural paramedics work closely with other health care workers in delivery of patient care. This is different to an urban response, in which there is some collaborative practice, but with limited capacity for participation due to time restraints, or inappropriate use of ambulance resources (such as ‘ramping’ of paramedic crews due to overloaded urban emergency departments) (Mulholland, 2010, pp. 167-168).

A major investigation into extended roles of paramedics by Health Workforce Australia (HWA) from 2012 to 2014, further expanded the knowledge around the capabilities of rural paramedics. The HWA project involved federal government funding directed toward a trial of extended care paramedics in the states of South Australia, Northern Territory, Tasmania and Australian Capital Territory. Operating under an increased scope of practice and with close ties to other health practitioners, the primary aim of the extended care paramedic was to manage patient care in the patient’s own environment; this avoided the need for hospital transport where possible.

Although some professional relationships took time to develop, examples of collaborative practice included consultation with Medicare Locals (an Australian Commonwealth Government initiative to improve coordination and integration of

primary health care) about Medical practitioner access, work with Aboriginal health organisations and others to establish health referral pathways, and clinical placements of paramedics with specialty services (such as palliative care or community heath). Health Workforce Australia reported favourable results in terms of patient care, stakeholder response, and overall service satisfaction (Thompson, Williams, & Masso, 2014, pp. 23-29; Thompson, Williams, Morris, *et al*., 2014, p. 81).

Clearly, evidence supports the important role that rural paramedics can play when investigating interprofessional learning and paramedic practice. The close working relationships between rural health care workers, can lay a foundation favourable to interprofessional practice and subsequent learning. As this section has shown, paramedic roles in Australia have evolved through basic first aid training in isolation from other professionals, to now include an approach to education and practice that sets the groundwork for interprofessional care. The next section will discuss cultural influences on paramedic practice, in order to understand the background in which this care takes place.

2.3Cultural influences and tensions in paramedic practice

The culture of paramedic practice, that is, the shared attitudes, values, goals and practices of the profession (Siemsen *et al*., 2012, p. 445) is important to outline. An awareness of culture helps understand the social background of the roles of rural paramedics, and their collaborative partnerships with other health care providers. As explained in Section 2.2, paramedic roles in Australia have developed from a highly disciplined type of background, with military, fire and police forces playing important roles during initial stages. Although modern ambulance services have evolved to be inclusive of university education, holistic practices and advanced medical pre-hospital care, the initial foundations of male-dominated military types of service certainly influenced the culture of paramedic care (Devenish, 2014; Hartley, 2012). This section provides an overview of the literature concerning paramedics and culture and uncovers three principle areas for discussion, namely; 1) a management/operation divide; 2) emergency response; and 3) interprofessional practice.

The search for literature initially began with combination of the terms ‘paramedic’ and ‘culture’ using the University of Tasmania (UTAS) electronic ‘MegaSearch’ library resource. Specific paramedic-based journal searches were conducted in the same manner and included the *Journal of Emergency Pre-Hospital Care* (JEPHC), and the *Australasian Journal of Paramedicine*. References from located papers further enhanced the search.

As this study examines interprofessional learning incorporating paramedics from an Australian perspective, the section is largely Australian-focused, offering international viewpoints only where they provide supporting evidence of the Australian models of paramedic practice.

2.3.1 A management/operations divide

The first principle area relating to cultural influence and the tensions this can have for paramedic practice is that of a division between management, or the overall ambulance organisation, and operational paramedic staff. An understanding of this management/operations divide produces a backdrop filter through which interprofessional learning must emerge.

Descriptions of ‘a management/operations cultural divide’ appear in several reports into various ambulance services throughout Australia. In a *NSW Legislative Council General Purpose Standing Committee* inquiry to the Management and Operations of The Ambulance Service of NSW (Parker, 2008), the overwhelming majority of complaints about the service (and reports of low morale by paramedics) was related to poor management rather than the nature of paramedic work (Parker, 2008, p. 7).

According to NSW internal corporate culture surveys, ambulance employees felt undervalued when compared with people in other organisations, and this had not changed since conduct of the first survey in 2000, and subsequent surveys in 2002 and 2005 (Parker, 2008, p. 8). Almost all ambulance staff, without exception, complained of feeling undervalued by management. Ambulance staff were particularly critical of an ‘old boys club’, which rewarded its own members while penalising those who ‘did not belong’ (Parker, 2008, p. 10). Examples cited include managers valuing vehicles more than staff, only hearing from management if

something went wrong, putting ‘bums on seats’ and no care about people on the road (Parker, 2008, p. 11). It also questioned the management’s focus of on managing budgets. There were, however, hints of cultural divide at levels other than management/operations and disparity of educational levels was one of these, especially between ‘qualified’ younger officers and more experienced older ones (Parker, 2008, p. 13). Further evidence of the embedded nature of these areas appeared in the 2010 review (Parker, 2010) of the 2008 inquiry (Parker, 2008): little had changed in the two successive years (Parker, 2010, p. 13).

The problems noted in the 2008 inquiry (Parker, 2008) were long-standing, with no positive action for nearly a decade prior to report; nor were they unique to NSW. The *Tasmanian Parliament Joint Standing Committee* report into ambulance services in that state found similar results, and partly blames administrative failings on the style of management and organisational culture within the service (Thorpe, 2003, pp. 13-14).

Another example of a management/operations divide has been further evidence of a culture of bullying and harassment among many Australian Ambulance Services. The Victorian daily newspaper, *The Age,* reported on a 2004 Parliamentary inquiry into Rural Ambulance Victoria (RAV) that revealed concerns around bullying, harassment and discrimination, suggesting an underpinning culture of ‘us and them’, between management and staff. Further to this, the manager of Victoria’s country ambulance service resigned over reports of bullying, sexual harassment and a culture of ‘command and control’ (Tomazin, 2006, p. 2). In response, RAV ordered a further inquiry and a change of management structure involving those managers implicated in the reports (Catalano, 2007, p. 7).

Similarly, in 2008, The *Sydney Morning Herald* reported on the Legislative Council Inquiry to the NSW Ambulance Service (Parker, 2008) and talked of the consequence of bullying in that ambulance service, stating that over ten-year period nine paramedics had committed suicide. These were active paramedics, many of whom had been waiting extended periods to have claims of harassment and bullying heard (Wallace, 2008). Further reporting in 2010 shows that the culture in NSW had not improved in the preceding five years (Wallace, 2010).

In 2014, similar reports concerned the Australian Capital Territory (ACT) ambulance service; however, some five months after a recommendation to investigate claims of bullying and harassment in the ACT service, no investigation had been initiated. Claims by the ambulance union went as far as to say the culture in the ACT service was toxic (Knaus, 2014a; Knaus, 2014b). Further reports on the ACT ambulance service confirm these issues of a culture of bullying and harassment. One article by the Transport Workers' Union, states that the Territory government, through the ACT ambulance service, failed to respond to a claim of bullying by one intensive care paramedic (Dunning, 2014). Similarly, reports of a bullying culture in St John Ambulance, Northern Territory, appear in that service (James, 2014).

A cultural divide between management and operations in paramedic practice is not unique to Australia and several sub-cultures exist within ambulance services globally. Wankhade (2012), examines cultures within the UK ambulance service and concludes there was no one culture; instead, several sub-cultures. The author describes these as 'operator culture,' 'engineering culture' and 'executive culture'. In the context of the UK ambulance service, 'operator culture' is that of the frontline paramedic crews; 'engineering culture' represents the call takers and dispatchers of the emergency medical dispatch centre and; 'executive culture' is that of the CEO and senior leadership team (Wankhade, 2012, p. 383).

In exploring the cultures of the service, Wankhade (2012) conducted seven semi-structured interviews with board executives, managers, frontline paramedics and dispatch staff. The author additionally undertook over 100 hours of non-participant observation (2012, p. 384). The results confirm the presence of the three sub-cultures and identifies some conflict and power struggles exist between the groups. For example, if the operators assumed that executives and engineers did not appreciate their views, they resisted and covertly did things in their own way (Wankhade, 2012, p. 385). Similar comments were apparent within the engineer group. The executive group had a clear focus on financial outcome and lines of hierarchy and control. A concentration on performance criteria and achievement took precedence over relationships with other groups. These sorts of activity had potential to undermine organisational and cultural change, especially at the time of reporting,

when the UK government was concerned with cultural change within the National Health Service (NHS) (Wankhade, 2012, p. 384).

The impact of change in this culture has helped to reinforce the existence of tensions between management and operations within ambulance services. Work by Wankhade and Brinkman (2012) examined change management in one UK NHS ambulance service by using interviews with trust staff and policy experts, in addition to non-participant observation, over a period of two years. The goal was to shift the culture from a simple transport service to a clinically driven emergency service (Wankhade & Brinkman, 2012, p. 5). This change also meant a merger of 33 ambulance trusts into twelve, new management structures and an enhanced clinical role of community clinical care (Wankhade & Brinkman 2012, p. 6). Seventy-two interviews over 2007-2008 with senior board members, managers, frontline staff, call takers, and dispatchers took place (Wankhade & Brinkman 2012, p. 7). There are six unintended consequences of culture change.

1. Hijacked process - where staff expressed concerns over the sacrifice of clinical education and workforce training in favour of work performance targets (Wankhade & Brinkman 2012, p. 12).
2. Cultural erosion - the extent of erosion to espoused ideals by subsequent events. For example, strengthening the clinical governance procedures was part of change management but over time resulted in erosion by other factors such as a divide between operations management and clinical direction (Wankhade & Brinkman 2012, pp. 12-13).
3. Ivory tower cultural change - individuals or groups involved in development of cultural plans were not fully aware of operational realities or were incapable of meaningful implementation. These realities ranged from educational and motivational levels to practices and procedures (Wankhade & Brinkman 2012, pp. 13-14).
4. Inattention to symbolism - lack of management understanding about other subcultures and their contribution to the organisation. In one symbolic example, presumption of a power issue occurred following appointment of managers from one area to the new trust. In another, delay in procurement

of new vehicles took on a symbolic meaning. Many staff began to query the benefits of restructure (Wankhade & Brinkman 2012, pp. 14-16).

5. Ritualisation of culture change - the potential impact of the strength of each sub-culture group was important in changing culture. For example, the influence of trade unions. Additionally, few managers sounded supportive of the concerns of frontline staff. Issues related to increased workload, delayed decision-making, lack of new vehicles, absence of direction, and non-availability of senior executives (Wankhade & Brinkman 2012, pp. 16-17).
6. Behavioural compliance - it appeared change in values was evolutionary, rather than through management initiative. Senior managers were optimistic about change, whereas frontline staff expressed concern about tensions due to uncertainty and confusion around structures and roles, corporate identity, challenge of convincing staff it was a merger and not a takeover, recognition that corporate challenge exists rather than pretending it doesn't (Wankhade & Brinkman 2012, pp. 17-18).

Clearly, attempts at cultural change, the presence of various sub-cultures within ambulance services, reports of bullying and harassment, low morale and a sense by operational paramedics of being undervalued by management are culturally-related challenges to the interaction between operations and management in the provision of paramedic care. Indeed, such challenges have the potential to carry over to fostering an environment conducive to interprofessional learning.

2.3.2 Emergency response

The second principle area related to cultural influences and tensions in paramedic practice relates to the process of providing an emergency response to patient care within ambulance services.

Perhaps one of the most common images of paramedic care is that of the high-end dramatic type of work (such as in attendance at car accidents or cardiac arrests). In an ethnographic study of the South Australian Ambulance Service (SAAS), Reynolds (2008) suggests that ambulance culture places an emphasis on high acuity work such as cardiac arrests, motor car accidents, anaphylactic shock and

unconscious diabetics, with paramedics having described these cases as ‘good jobs’; whereas cases with no intervention were described as ‘bad jobs’ (p.86). Non-emergency work made up 60% of Reynolds’ (2008) study, with this type of work seen as a ‘waste of time’ by paramedics (Reynolds, 2008, p. 160).

Reynold’s work was limited, in being an ethnographical study of SAAS, which incorporates both semi-structured interviews and field observation, and includes twelve interview and 17 in field paramedic participants (Reynolds, 2008, p. 58). However, other evidence supports this view has not altered since. Simpson, Thomas *et al*. (2017) note in their study of Australian paramedics caring for elderly patients who have fallen, the low regard for this type of low acuity work as a core purpose of their role as paramedics (p. 5).

From a UK perspective, in a reflection of paramedic practice evolving from a treat and transport role to a more rounded role of patient treatment at home, Radcliffe and Heath (2009) examine ambulance call out records from 1999 to 2001 for a large county ambulance trust. Radcliffe and Heath (2009) note that non-transportation of patients automatically flagged the case as a cancellation. They state this practice disguised the incidence of patients remaining at home after the effective treatment by a paramedic crew. The concept of treatment at home rather than transport seems to be against the culture of the ambulance service, which was one of emergency response and transport to a hospital accident and emergency department. The changing role of paramedics means potential management of more patients at home; however, Radcliffe and Heath (2009) argue that the performance measures of the service and prevailing organisational structure, were in fact acting as a brake on reform (p.419).

One consistent theme through several papers that investigate paramedic and ambulance culture is that of a patient care environment driven by performance indicators, such as response times to cases, rather than the quality of care received. Certainly, in Australia, a common theme regarding measurement of patient care is response times. Lennox (2010), in a review of the Australian Capital Territory Ambulance Service (ACTAS) comments that this is because the general public understands ambulance response measured in time frames, rather than quality of patient care received. Interestingly, Lennox states that the Australian Productivity

Commission publishes National Ambulance performances annually, using response times, but that anomalies exist in the measurement of these data. Different states may define different points from which to gather times and therefore comparisons between states may not be appropriate (Lennox, 2010, pp. 49-52).

This type of response to patient care reaches further than Australia alone and was specifically examined by Price (2006) in investigation of one Welsh Ambulance Service (nine ambulance stations and 20 experienced paramedic participants) serving a large district general hospital. A criterion of an eight-minute response time to provide patient care included strategies such as the use of rapid response vehicles crewed by single paramedics, the use of 'standby' at strategic locations rather than ambulance stations, and the use of volunteer community first responders. Paramedics stated this type of "beat the clock" culture (Price, 2006, p. 128) had resulted in detrimental effects on patient care and adverse effects on paramedic health, safety and well-being. Paramedics were certainly not in favour of such response and descriptions of the creation of a response time culture included terms such as "an obsession", "ludicrous", and "impossible" (Price, 2006, p. 128).

A similar culture is also highlighted in a study by McCann, Granter, Hyde and Hassard (2013), where, to examine the outcomes of change introduced by the National Health Service (NHS) in the UK, the researchers conducted in-field observations with operational ambulance staff, call takers and dispatchers. McCann *et al*. (2013) note a distinct culture of a service responding to time targets, rather than outcomes of patient care; this also revealed other systems and technologies deployed by the organisation to sustain power relations with and over ambulance personnel. This appeared in the use of time targets, as well as work intensification and limited clinical discretion offered to paramedics. There was strong managerial control, described as being by 'remote control', with use of electronic monitoring of vehicles and use of managers, team leaders, and liaison officers to harass on-road staff in a direct attempt to control work practice (McCann *et al*. 2013, p. 760).

The concepts of an emergency response culture based on attendance to those patients deemed more critical, or management decisions around response time rather than the quality of patient care given, does not present a full picture of paramedic response to patient care; clearly, other factors are involved. In terms of patient safety,

Gallego, Westbrook, Dunn and Braithwaite (2012) compare cultures, including paramedics, across types of health services in South Australia. One interesting finding across ambulance services was the presence of more positive attitudes to patient safety in rural ambulance services (four services, 229 respondents) when compared with metropolitan (six services, 223 respondents). To explain this difference in a culture regarding patient safety in rural areas Gallego *et al.* (2012, p. 318) suggest there might possibly be stronger community links in rural areas and a substantial proportion of locally based ambulance volunteer staff. Further, the rural ambulance services stood out among the other health services examined and ranked fifth best positive overall from the eighteen services surveyed (Gallego *et al*., 2012, p. 317).

Importantly, whilst core practice will always involve emergency response to critically ill and injured persons, different types of practice, incorporating greater interprofessional interaction involves an identity shift for some paramedics. There is little evidence of how paramedics deal with the creation of new roles. Wankhade and Brinkman (2012) identify unexpected consequences of culture change but work by Jashapara (2017) specifically examines the construction of identity among paramedics in new roles. Jashapara (2017) conducted an ethnographic study to examine professional identity among the new UK 'Elite' paramedics, whose tasks were to provide clinical leadership roles and advanced skills to attend the most serious cases of trauma. A blurring of roles was apparent between Elite paramedics and doctors, with doctors wishing to maintain control of areas, such as emergency helicopter transport, despite the capabilities of Elite paramedics. Likewise, intensive transport nurses were reluctant for Elite paramedics to usurp their roles. These new paramedics experienced a state of flux as they made sense around their university learning, clinical work placements and realities of their everyday work. They had no existing templates by which to model their sense of identity within this new professional milieu (Jashapara, 2017, p. 717).

Although emergency response may be dominant when investigating themes of culture, a more holistic approach to practice underlies the care given by paramedics. Sections 2.2.3 and 2.5 both illustrate how paramedic roles have evolved to encompass interprofessional practice in more than an emergency response alone.

Over twenty years ago Wahlin, Wieslander, and Fridlund (1995) chose to examine the provision of 'loving care' in the Swedish ambulance service. 'Loving care' is characterised by feelings of any one of the following in the patient or their next of kin: safety; confidence; closeness; delight in bodily contact; a will to listen; consolation; hope; peace and quiet; or well-being and satisfaction.

Twelve Swedish paramedics describe incidents where they had offered 'loving care'. These situations of care were entirely subjective on the part of individual paramedics. A total of 167 incidents identified by the participants, underwent thematic analysis to identify three key dispositions related to the provision of 'loving care':

1. cognisance (ability to judge and treat based on monitored symptoms);
2. solicitude (through humbleness, closeness, consideration and rapport); and
3. empathy (capacity and knowledge about crisis) were present in the care provided by paramedics (Wahlin, *et al*., 1995, pp. 308-310).

The cultural influence of emergency response needs understanding within a framework of these underlying and more rounded approaches to patient care.

2.3.3 Interprofessional practice

Although a culture of emergency response may at times appear paramedic-centric, paramedics do operate in collaboration with others. This section introduces a third principle relating to cultural influence on paramedic practice, that of interprofessional practice. In the introduction to an Australian article on paramedic readiness for interprofessional learning and cooperation, Williams, Boyle *et al*. (2013) note interprofessional practice is about breaking down barriers to promote symbiotic patient care (p. 369). Interprofessional activity incorporating paramedics is only considered minimally in literature; when specifically seeking cultural influence, it mainly relates to the area of clinical handover in the hospital emergency department.

An area of interprofessional collaboration, which includes paramedics, is the clinical handover of ambulance patients in the emergency department, although there is also limited research on this topic. One Scandinavian literature review of articles

relates to paramedic handover in emergency departments (Jensen, Lippert & Ostergaard, 2013), and includes papers since 1995 regarding adult patients with somatic conditions (Jensen, *et al*., 2013, p. 965). One conclusion is that during patient handovers a meeting of different health care cultures appeared. For example, ambulance personnel were often frustrated that nursing staff continued to perform tasks during clinical handover rather than actively listen to the handover (Jensen, *et al*., 2013, p. 967). The authors suggest that a merging of cultures would see an increase in patient handover quality, with a common multiprofessional team culture seen as a safety measure to prevent adverse patient outcomes (Jensen, *et al*., 2013, p. 968).

Merging of cultures is absent when looking at similar research. Bost, Crilly, Patterson and Chaboyer (2012) argue that clinical handover between two organisations with different cultures (nursing/medicine/ambulance) could improve by shared education programs involving tools such as guidelines, whiteboards for documenting handover information and structured communication models (p. 134). The authors conducted an ethnographic study comprising 79 paramedics, 65 nurses and 19 doctors when conducting handovers at one large regional hospital in Queensland, Australia. Their study shows that the use of tools such as the whiteboard was infrequent, and no one took responsibility for use; radio or telephone alerts were unreliable; and report forms, read after paramedics had left, saw no referral to during handover (Bost, *et al.*, 2012, p.138). Factors limiting interprofessional practice during handover were constant interruptions, workload, working relationships (trust), and transfer of responsibility (Bost, *et al*. 2012, pp.136-137).

The consequences of limited interprofessional practice as a result of cultural differences between health care workers is described in a Danish study of clinical handovers conducted by Siemsen *et al*. (2012) who note eight central factors of clinical handover that impact on patient safety. These factors are communication, information, organisation, infrastructure, professionalism, responsibility, team awareness and culture. The authors state that the overall health care culture did not seem to support or emphasise patient safety in clinical handover. The health professionals examined were not aware that clinical handover was a risk factor in

patient care. The paper by Siemsen *et al.* (2012) is one the few that deals with culture, and which incorporates paramedics. Specific to paramedics, was a strong cultural difference to other health care participants. The paramedics had little experience and knowledge of the potential for interprofessional learning and stressed a fear of sanctions for making handover errors (Siemsen *et al*. 2012, p. 445).

Further illustrating this concept of interprofessional learning potential for paramedics, when compared with other professions, is an Australian study into the use of a Clinical Information Access Program (CIAP) (Westbrook, Westbrook, & Gosling, 2006). While not a direct interprofessional learning initiative, CIAP provides health practitioners in New South Wales with access to clinical journals and databases, both at point-of-care and at home. The authors note that paramedics did not support the legitimacy of CIAP in a clinical information role as strongly as nurses (64.1% compared with 71.9%), and that only 22.5% of paramedics saw CIAP as providing up to date information when compared with 53.7% of nurses. The authors argue that the culture of nursing was supportive of this on-line evidence system; ambulance culture was less so (Westbrook *et al* 2006, p.6).

This example indicates that cultural backgrounds can influence the ways different professions react differently in similar learning settings. This is an important consideration when looking at the mix of professionals within an interprofessional environment. The potential merging of cultures in order that interprofessional learning can take place may require some adaptation in order to understand interprofessional roles. This section demonstrates that a management/operation divide, emergency response and interprofessional practice provide evidence of influence on paramedic practice by paramedic culture; yet, there have been calls for, and implementation of, successful cultural change. Important to this process is the understanding of paramedics in the professional setting and the next section helps build a picture of the paramedic as ‘professional’.

2.4 The professional paramedic

With new models of paramedic practice, a changing culture may well reflect a shifting identity for some paramedics, and the need to create different templates by which to understand paramedic practice and of paramedics being ‘professional’.

Sheather (2009) notes a profession must have support to exist and outlines some common traits of a profession, such as university education, self-regulation, serving the community without favour, control of education entry and practice, a set of values and body of knowledge that is the sole domain of that profession (Sheather 2009, p. 64).

This section confirms these traits by seeking relevant literature that identifies the paramedic as a professional. These traits are regulatory frameworks, practice and education. Also considered is the overall perception of paramedics as professionals, or not. The section introduces the influence of professionalism in paramedic practice, which in the context of this thesis on interprofessional learning, is important in placing paramedics within a specialised professional structure.

2.4.1 Towards a regulatory framework of paramedic practice

One important approach, when considering paramedics as professional, is that of formal professional recognition. This need for formal recognition perhaps stems from the emergence of early professions, such as medicine, clergy or law, and that a profession must have Government support to exist (Sheather, 2009, p. 64). Part of this formal process has been a move toward a national regulatory framework for a paramedic profession.

Changes in educational standards for paramedics through tertiary institutions, and an emerging private sector, have led to recommendations for the need of regulation of the paramedic industry. In February 2010, the Australian Health Workforce Ministerial Council (AHWMC) requested advice on the potential inclusion of paramedics as a profession in the National Registration and Accreditation Scheme. In response, a consultation paper was prepared by the Department of Health, Western Australia, on behalf of the Australian Health Ministers' Advisory Council (AHMAC). At the time of the 2012 *Consultation Paper: Options for Regulation of Paramedics,* there was no national regulation or registration of Australian paramedics, and most paramedic services had scopes of practice governed by individual employers with ranges of responsibilities and practices. (Australian Health Ministers' Advisory Council, 2012, p. 3).

At the time of the AHMAC consultation, paramedics in other countries were subject to regulatory frameworks. In the UK, paramedic statutory registration had existed through the Health Professions Council (HPC) since 2000, and in the Republic of Ireland since 2005. In New Zealand, paramedics, as in Australia, were not members of a registered health profession. In the United States, a national Emergency Medical Services (EMS) scope of practice model defined four levels of EMS licensure: Emergency Medical Responder; Emergency Medical Technician (EMT); Advanced EMT; and Paramedic (Australian Health Ministers' Advisory Council, 2012).

The Australian Health Ministers' Advisory Council consultation paper suggests four options to advance regulation of paramedics in Australia, namely:

1. no change;
2. strengthen statutory complaint mechanisms;
3. strengthen state and territory regulation of paramedics through ambulance legislation; or
4. registration of paramedics through a National scheme (Australian Health Ministers' Advisory Council, 2012, p. 58).

The membership of Paramedics Australasia (PA) favoured the fourth option, which represents:

- an independent complaints mechanism;
- approval of educational and practitioner standards to use the title paramedic;
- prevention of paramedics with issues moving from job to job;
- checks on condition of practice;
- compulsory and independent accreditation of training and education;
- cover for all paramedics; and
- cover for all employers of paramedics (Paramedics Australasia, 2012, p. 3).

Paramedics Australasia, as a recognised professional body representing paramedics, displayed staunch support of regulation of paramedics as a profession. The organisation clearly states that due to increasing interventions by paramedics as independent practitioners, and the accompanying increased risk of harm to the

public, the most appropriate action was to seek regulation of paramedics by national registration as a profession (Paramedics Australasia, 2012, p. 2).

In the same year (2012), as Australian Health Workforce Ministerial Council seeking advice on the inclusion of paramedics as a formal profession, a review of the Australian Capital Territory Ambulance Service (ACTAS) suggested recommendations for regulation of paramedics, but with certain conditional aspects attached. In the ACTAS review, Lennox (2010) advocates that in order to represent paramedics as professional and to tie into regulation, a clinical governance framework (CGF) should be in place. Lennox (2010) proposes four 'pillars' of such a framework:

1. consumer value/patient experience;
2. clinical effectiveness and clinical practice;
3. clinical risk management; and
4. professional development and training (Lennox, 2010, p. 56).

The ACTAS review specifically mentioned associated areas of a CGF, such as the introduction of a Clinical Advisory Committee with a Quality Assurance role and protected by legislation (Lennox, 2010, p. 65). Although the report does not outline specific methodology, and contains several examples of personal (albeit experienced) opinions from the reviewer, Lennox (2010) devises a CGF that would help manage issues related to a profession. These issues include:

- competence and professionalism matters;
- personal and professional behaviour;
- professional standards; personal relationships with clients;
- quality service provision to clients;
- conflicts of interest;
- issues relating to harassment, discrimination and so on.;
- Occupational Health and Safety and injury management;
- compliance with reporting for child protection; and
- procedures for breach of conduct (Lennox, 2010, p. 67).

Woollard (2012) too, in a commentary on paramedic professionalism in both the UK and Australia, argues that features of clinical governance overlap with being a profession. Suggested features are:

- patient centredness;
- shared evidence-based standards;
- individual and organisational accountability;
- systematic learning from untoward incidents;
- mechanisms for continuous quality assurance;
- strong leadership; and
- organisational, professional and occupational cultures that value excellence.

Woollard (2012) suggests some aspects in order to implement clinical governance and these include risk management, information management, undertaking of research, education and self-regulation through professional bodies. Woollard (2012) also raises the associated issue of registration as having the effect of protecting the public from unprofessional practitioners.

The comments by Woollard (2012) are generally based on his experience with the UK ambulance services and it is expedient, when examining the influence of regulation on professionalism in Australia, to consider overseas experience. McCann *et al* (2013) explore professionalisation of paramedics, based on an ethnographic study of UK National Health Service (NHS) ambulance personnel. Their investigation of ambulance work was mainly at an on-road practice level, examining "front-line realities" (McCann *et al.*, 2013, p. 753). Professionalisation of ambulance services in the UK was a 'top-down' process. The UK Labour government of 1997-2009 set about a process of reforms to the National health Services (NHS), and because of this, some para-professions (such as occupational therapists, chiropractors, podiatrists and paramedics) were re-classified as professional. This involved reclassification of such occupations under the Allied Health Professional (AHP) banner and regulation by the newly formed Health Professions Council (HPC) (McCann *et al*., 2013, p. 754-755).

As part of a top-down approach, paramedics were the only AHP organisation lacking a professional organisation and, as a result, realised the compulsion to create

one; namely, the British Paramedic Association (BPA), renamed the College of Paramedics in 2009 (McCann *et al*., 2013, p. 756). At the same time, the paramedic profession began moving from internal to university-based education (McCann *et al*., 2013). Ambulance work in the UK had taken on aspects of a profession such as a professional body: practitioner journals, higher education courses, state registration and codes of ethics (McCann *et al*., 2013, p. 757). However, there was still some mismatch with on-road practice, and only 14% of paramedics at the time of the report had joined the College of Paramedics.

Caffrey *et al*. (2014) (in writing about paramedic specialisation) note a fragmented approach to paramedic regulation existed across the United States. They argue that Emergency Medical Services (EMS) can be up-skilled to provide a meaningful role in coordination of mobile health care within regional communities. With the passing of the federal *EMS Systems Act* of 1973, US states encouraged the development of licensing programs for EMS personnel, and the US Department of Transportation revised a National Standard Paramedic Curriculum in 1998.

The completion of National EMS Education Standards did not occur until 2009. Caffrey *et al*. (2014) noted that, at the time of writing, the National Registry of Emergency Medical Technicians (NREMT) was a national independent organisation recognised as a component of licensing in 46 states. The NREMT implemented and maintained uniform requirements for entry level and recertification levels of all EMS practitioners (Caffrey *et al*., 2014, p. 266); however, the NREMT did not offer certification to any specialised services. In addition, no state, or the NREMT, required a college degree at any level for national accreditation; although, for general certification, the NREMT did require completion of an education program accredited by the Commission on Accreditation for the EMS Professions (CoAEMSP) (Caffrey *et al*., 2014, p. 266).

Despite the fragmented approach to regulation in the US, Caffrey *et al*. (2014) allude to paramedic specialties having influence on the perception of paramedics as professional. By 2014, there was only one EMS related specialty certification board, the Board for Critical Care Transport Paramedic Certification (BCCTPC) formed in 1999. The board offered three certifications, including that of certified flight paramedic. Fourteen states recognised critical care paramedic

specialisation through licensure, certification, endorsement or an expanded scope authorisation process. One of the few other paramedic specialisations recognised at the time was the community paramedic in Minnesota (Caffrey *et al*., 2014, p. 269). The authors argue that the success of certification for flight paramedics had led to recognition by medical professionals, employers and the public of a more specialised and professional role for paramedics, above that of entry level (Caffrey *et al*., 2014, p. 271).

The US example provided by Caffrey *et al*. (2014) demonstrates that some paramedic specialties, such as community or flight paramedics, gained professional acknowledgement (despite a general fragmented approach to National Regulation). This shows that professional recognition can occur through more localised action.

In similar circumstances (in Australia), the South Australian Ambulance Service (SAAS) successfully undertook a legal process by which to have paramedics recognised as professional Allied Health Personnel. As a result, since 2011, the South Australian Service Enterprise Agreement (Industrial Relations Commission, 2011) refers to SA paramedics as professional, and created streams named:

- Operational – Professional (Emergency) Stream and
- Operational – Professional (Emergency) Management Stream.

This varies from classifications for the non-paramedic patient transfer service, namely:

- Operations – Patient Transfer Service Stream, and communications staff,
- Operational – Emergency Operations Centre Stream (Industrial Relations Commission 2011, pp. 21-37).

Based on the South Australian case, in a case heard by the Tasmanian Industrial Commission, the Department of Health and Human Services (DHHS) took an alternative view and argued against paramedics being deemed professionals. Opposing points were:

- paramedic associations had existed since 1988 and had not had any day-to-day impact on the work of paramedics;

- paramedic professionalism had already gained recognition though previous wage increases;
- there was no expectation for paramedics to keep up to date with professional literature or the current state of medical knowledge; and
- paramedics could not act outside of their Clinical Practice Guidelines (CPGs) or without express authority of an approved medical practitioner (Abey *et al.,* 2014, p. 75).

The respondent in this case, the Health and Community Services Union (HACSU), successfully argued for professional recognition of paramedics. Part of the argument was that in respect to Ambulance Tasmania, employment was dependent on holding a Bachelor of Paramedic Science. This aligned paramedics with Nurses and Allied Health Professionals, such as physiotherapists and recognised the paramedic field as a separate 'discipline'. Further to this, Intensive Care Paramedics (ICPs) occupied a clinical leader and consultative role within the service. Specialist fields such as aeromedical paramedics had its own Graduate Certificate qualification, The University of Tasmania developed an Honours program in paramedic practice, and several paramedics had completed or were completing Master or PhD qualifications (Abey *et al.*, 2014, pp. 61-62).

As well as these statewide drives for change, national efforts toward formal professional recognition have also succeeded. Most recently, paramedicine in Australia gained formal regulation as a profession under the Australian Health Practitioner Regulation Agency (AHPRA). This involves specific requirements for paramedic registration, and, from December 2018, includes the protection of the term 'paramedic' to only those registered as practitioners (Paramedicine Board of Australia, 2018). This industrial recognition emerges in addition to efforts from individual states to formalise the paramedic discipline as being professional.

2.4.2 The paramedic professional in practice

Formal recognition as 'professional' however, does not necessarily imply an automatic link to interprofessional learning. For this there is also a need to consider the practice elements of paramedic care, and if these elements are 'professional'.

O’Meara (2009) addresses the move toward a formal recognition of paramedics as professionals in an editorial for the *Journal of Emergency Primary Health Care* and notes that over the decade prior to 2009, paramedics had seen an increase in depth of clinical practice as well as participation in research. This shifted them from a basic vocational pre-hospital care model and placed them alongside other health professions. This is a generally well-shared view, with paramedics in Australia having progressed from ‘ambulance drivers’ to paramedics, and from strict protocol-driven practice to more complex procedures requiring increased medical knowledge and problem-solving skills (Sheather, 2009, pp. 66-67).

Paramedic practice, however, is more than advanced skills alone and O’Meara (2009) credits the work of the Australian College of Ambulance Professionals (now Paramedics Australasia) in seeking professional behaviours incorporating adherence to professional codes of conduct, reflective practice and commitment to professional development. In 2010, the Australian Council of Ambulance Authorities (CAA) published a paper and associated report discussing professional competency standards for paramedics in Australia (Sassella & Melville, 2010).

Development of the main paper was a two-stage process. The first stage comprises an ambulance education committee working party and consultation with various stakeholders in Australia to identify influences on paramedic practice and tertiary education providers, to develop a view of what constitutes competent paramedic practice.

The second stage incorporates a consultative process with stakeholders including on-road paramedics, union and professional association members, academics, educators and other ambulance service personnel. Representatives were from all jurisdictions in Australia and included New Zealand (NZ) (Sassella & Melville, 2010). The paper identifies aspects of paramedic professionalism related to knowledge, understanding and skills required for practice. In relation to being professional, paramedics:

- demonstrated the knowledge and understanding required for practice as a paramedic;

- operated within a safe practice environment;
- identified and assessed health and social care needs in the context of the environment;
- formulated and delivered clinical practice to meet health and social care needs within the context of the environment; and
- critically evaluated the impact of, or response to, paramedic actions (Sassella & Melville, 2010).

Importantly, paramedics met four professional expectations, in that they:

1. acted in accordance with accepted standards of conduct and performance;
2. made informed and reasonable decisions;
3. demonstrated professional autonomy and accountability; and
4. developed and maintained professional relationships (Sassella & Melville 2010, pp. 7-9).

Evidence from rural paramedic practice further adds to views of paramedics as professionals, and here, the concept of the paramedic discipline being not only professional but also interprofessional has found illustration. The *Tasmanian State-wide Rural Medical Emergency Response Framework (SWERF) Report* from 2012 (Department of Health and Human Services, 2012) was set up to review Tasmania rural health facilities in order to address four objectives:

1. identify the level of emergency response activity at each site;
2. determine emergency response capabilities;
3. recommend the type and level of responses needed to enable Tasmania' rural health facilities to provide appropriate emergency response; and
4. develop a framework and policy to support the provision of emergency response at rural facilities (Department of Health and Human Services 2012, p. 7).

Methodology for the report included an audit of the Department of Health and Human Services (DHHS) rural health sites and facilities, consultation with clinicians, clinical educators, and facility managers, triage data, Ambulance Tasmania (AT) data from rural sites, and review of serious incidents (Department of Health and Human Services 2012, pp. 28-30).

A key theme in the report is the importance of interprofessional collaboration, with various clinicians mentioned, including both salaried paramedics and volunteer ambulance officers. One of the recommendations from the report is to explore the possibilities of expanding traditional roles for nurses and paramedics in rural areas (Department of Health and Human Services, 2012, p. 10). The report notes the potential for an interprofessional role for remote areas where nursing practice had expanded to include an emergency response. It suggests a greater focus on interprofessional engagement and learning might lead to interest in expanded paramedic roles (Department of Health and Human Services, 2012, p. 39).

The SWERF report further advances paramedics as professional among health care colleagues such as nurses, and notes paramedics as autonomous practitioners, being able to initiate medications as well as perform invasive techniques. The *Ambulance Services Act* (as at 2012) does not preclude paramedics from providing this practice in health care facilities; whereas Registered Nurses (RNs) in the same facilities had requirement to consult a medical practitioner before conducting similar treatments (Department of Health and Human Services, 2012, p. 51).

A main recommendation of the report is that to achieve sustainable levels of utilisation of clinical staff in fluctuating or low populations, trialling of interprofessional work models between Area Health Services and Ambulance Tasmania is a potential area for consideration (Department of Health and Human Services, 2012, pp. 53-54). Such a suggestion came with a warning that due to fluctuation in population, health practitioners in these areas may suffer from periods of both over and underutilisation. An essential element is the need for ongoing education for professions (Department of Health and Human Services, 2012, p. 45).

2.4.3 The role of cohesive education in paramedic practice

Clearly, one message from the SWERF report (Department of Health and Human Services [2012], noted in Section 2.4.2) is that collaboration between professionals can form a part of professional practice that may lead to further development of roles in the provision of patient care. Of note however, was the call for ongoing education

for professionals, and there is a link with the role of coordinated and cohesive education in the promotion of professional practice.

In Australia, education for paramedics has moved from in-house courses to incorporation in the tertiary education system, and in support of strengthening the professional status of education there is evidence of increased consistency of paramedic education. Initially, higher institutions for paramedic education in Australia had little organised coherency between curricula. By 2009, to address inconsistencies, the Council of Ambulance Authorities in Australia (CAA) had established a *Paramedic Education Programs Accreditation Program* (PEPAP), which used established training and education standards and practice/proficiency standards to evaluate and accredit paramedic programs as delivered by higher institutions in Australia and New Zealand (NZ). CAA stated that member jurisdictions indicated they would give preference of employment to paramedics educated under institutions complying with the PEPAP framework; however, this remained voluntary, as CAA had no legislative base to demand compliance (Australian Health Ministers' Advisory Council, 2009, p. 14).

Despite the moves by CAA to develop and instigate a professional accreditation process for university programs, by 2009 the process was inadequate for paramedic graduates to gain employment across borders without further training. Further, qualified paramedics were somewhat reluctant to move interstate from their place of education, or to remote and rural areas. In South Australia, the ambulance service had addressed this by sponsoring ambulance volunteers to undertake the degree program and move to paid employment. Additionally, although the CAA was in support of development of a paramedic curriculum, the same organisation (until 2008) had been opposed to a national registration of paramedics, largely due to consideration of the numbers of volunteers working for ambulance services in Australia (Willis, Pointon, O'Meara, McCarthy, & Lazarsfeld Jensen, 2009, pp. 11-13).

The Council of Ambulance Authorities in Australia is not the only ambulance organisation working toward a consistent curriculum for paramedic education in Australia. As well as the PEPAP framework of CAA for undergraduates, Paramedics Australasia (PA) provided a Certified Ambulance Professional (CAP) program for

its members (Australian Health Ministers' Advisory Council, 2009, p. 17). Again, although a positive move toward establishing a professional status for paramedics, PA's program, like PEPAP, existed as a voluntary form and in the absence of a regulatory framework.

Paramedic organisations in Australia have worked toward increasing the professional status of paramedics through education, and one feature of the university sector has been that of growing multidisciplinary collaboration. In researching the future of paramedic education in Australia, Willis *et al*. (2009) conducted a review of existing literature, as well as interviews with key personnel in the UK, NZ and Canada and focus groups in Australia. The aim was to learn from international pre-hospital service providers, professional associations, universities and literature, the best contributions to the future academic needs of paramedic students in Australia. This included models of collaboration and working relationships that may be ideal to meet these needs (Willis, Pointon *et al*. 2009, p. 19). One suggestion coming from the investigation was concerned with developing multidisciplinary practice; particularly between nurse practitioners and extended care paramedics. Although multidisciplinary practice represented some degree of boundary blurring, with possible role substitution, there was indication that universities can play a large role in helping to develop professional roles, while at the same time allowing professions to maintain individual identity (Willis *et al*., 2009, p. 85).

Further support for incorporating paramedics in multidisciplinary or interprofessional education came from a report commissioned by Health Workforce Australia (Rudd, Freeman, & Smith, 2010) which specifically examines the use of simulated learning environments for student paramedics. The report accepts and refers to paramedics operating as professionals and regards paramedics on equal footing with other professionals. Two of the recommendations from the report are around collaboration and learning with other professions (Rudd *et al*., 2010, p. 6). One aspect of the report acknowledges that the competencies recognised by CAA in its PEPAP framework were being utilised in simulated learning activities. The development and maintenance of professional relationships was 81% likely to have the greatest potential of delivery by simulated learning (Rudd *et al*., 2010, p. 56).

By 2013, a national audit into interprofessional education in Australia that surveyed all Australian universities providing interprofessional education, noted consideration of paramedics as being professional for the purpose of interprofessional education (Dunston *et al.*, 2013).

Recognition as professional has been a positive effect of developing coordinated and cohesive education for paramedics; however, there needs to be an awareness of some issues around the education process. In a literature review of articles relevant to paramedic education in Australia, Hou, Rego and Service (2013) examined similarities and differences between paramedic education programmes. At the time of their study, despite the work by various paramedic bodies (mentioned in previous paragraphs), there existed no National accreditation for paramedics, differing educational programmes throughout Australia and mixed acceptance of such programmes among different ambulance services. The authors note one of the challenges facing paramedic education is the lack of accreditation of education programmes, as seen in medicine, nursing and other allied health professions. Hou *et al*. (2013) suggest the lack of a national standards and national accreditation is a reason for paramedics to remain regarded as semi-professional (Hou *et al*., 2013, pp. 117-118).

The influence of existing paramedic culture has also appeared to influence educational processes and professionalism. Lazarsfeld-Jensen (2014) reviews two previous qualitative studies designed to investigate optimal paramedic preceptorship in Australia, both before and after graduation. They approached the review from a new perspective of storytelling by paramedics and conducted a literature review. The authors suggest that a critical, informed and independent practitioner should be a product of a university education, enabling a 'critical cynicism' toward a culture of command and control (Lazarsfeld-Jensen, 2014, p. 738). They also argue however, that culture exists in other forms and that paramedics are still trying to establish an identity, with concepts of a rescue culture being confused with a more academic health care approach to paramedic practice (Lazarsfeld-Jensen, 2014, p. 734).

2.4.4 General perceptions of paramedics as 'professional'

In the areas relating to paramedics and professionalism, major issues have been the importance placed on formal recognition as a profession, and the practice and education of professionals. Increased skills and practice, tied in with appropriate education, have placed paramedics on similar footing as other health professions. In addition to this are the formal moves toward regulation and recognition in legislation. Professionalism is greater than a formal process alone and, regardless of a formal definition of what constitutes a profession, it is necessary to consider perceptions of paramedics as professional in broader terms. These perceptions are an important part of interprofessional activities as they can influence the regard for paramedic practitioners by the general public, as well as other professions.

Woollard (2012) writes about professionalism in the UK Ambulance Service and poses the question: are paramedics professional in either the UK or Australia? Woollard (2012) finally comments that ultimately the general perception of collective behaviours and beliefs will determine what is paramedic professionalism. Certainly, the public has regarded 'paramedics' as belonging to a profession for many years. Evidence of this has appeared for at least eleven years prior to and including 2014; paramedics led the *Australian Readers Digest* polling for the most trusted professions in Australia (Australia Reader's Digest, 2014).

It also seems paramedic students regard their chosen occupation as a profession. Williams, Fielder, Strong, Acker and Thompson (2014) sought to explore paramedic students' views on paramedic professionalism in Australia and New Zealand (NZ). The authors used a cross-sectional study, using convenience sampling of undergraduate paramedic students from three universities (two Australian and one NZ). They developed a paper-based questionnaire modified from the 'Professionalism at Work Questionnaire' (PWQ), originally developed to measure professionalism across three groups: paramedic students, paramedics and paramedic technicians (Burford *et al*., [2013]: cited in Williams, Fielder *et al*. [2014]). Of the 479 voluntary participants, and in relation to regard as paramedics as professionals, the results of the study are promising. In asking if members of the public regarded paramedics as professional there was a 98.7% agreement. Some 97.5% of participants also agreed that paramedics had special qualities that set them aside

from other professions. A total of 94.6% agreed that paramedics should operate within a regulated profession (Williams, Fielder *et al*., 2014, pp. 3-4).

One area that has not arisen from literature specific to paramedic professionalism is that of the ambulance volunteer. Within Australia, and many other countries, a large volunteer workforce provides pre-hospital care in addition to paramedics. Volunteer ambulance officers in Australia, at least, have no formal registration process as 'paramedics', but through established induction and training processes, are recognised as members of the same health care team. Being a volunteer should not exclude being professional. Ambulance volunteers are regarded as staff in the ambulance services they work for, they operate under set protocols and guidelines that are constantly under review, and they can apply to membership of Paramedics Australasia, as well as have representation though state ambulance volunteer associations. Establishment of regulatory frameworks affect volunteer staff, as they do salaried staff. At the time of writing, in Tasmania, the site of this study, a process was in place whereby volunteers had to meet regular education and practice targets with the aim toward achieving a yearly registration process. For this study, ambulance volunteering is certainly a discipline of pre-hospital care and forms part of the interprofessional learning process.

The recognition of ambulance volunteers as part of the mix of paramedicine as a profession reinforces interprofessional learning as comprising many different types of professional practitioner. Certainly, regulatory frameworks for paramedic practice create a formal background by which to regard paramedics 'professional', with paramedic practice and education equally important considerations. Interprofessional learning incorporates the activities of two or more professions and in order to establish further understanding around the area where it involves paramedics, the next section focuses on a rural perspective of interprofessional paramedic practice.

2.5 Interprofessional paramedic practice – a rural perspective

There is clear evidence that those providing pre-hospital care as 'paramedics' are regarded as professional or emerging professionals. This chapter, by first considering the development of paramedic roles with a focus toward rural practice, demonstrates

that complex interactions take place between paramedics and other health care professionals in the delivery of patient care. These interactions, of course, must undergo consideration in addition to cultural foundations, as a background to the care provided.

This final section of this chapter provides a review of literature where rural paramedics have embraced the concept of interprofessional learning. This section presents evidence of interprofessional practice, from the perspective of paramedic care in the rural environment. It provides a rationale for the selection of rural paramedic care as the basis for this study of interprofessional learning and paramedic practice.

The section is largely based on, and adds to, a peer reviewed paper by Mulholland, Barnett and Spencer (2013) written during this study. The paper utilises a search process for literature around interprofessional learning, adapted from a technique based on research by Dimoliatis and Roff (2007), who identify search terms from the MEDLINE database most likely to retrieve articles relevant to inter/multiprofessional education. In developing search algorithms, the authors argue searching the title/abstract as an effective approach in the investigation of interprofessional literature.

Further, using a combination of prefixes ‘inter’ and ‘multi’ with adjectives ‘professional’, ‘disciplinary’ and ‘shared’, and the nouns ‘education’, ‘learning’ and ‘training’, located almost all possibly relevant papers. The search adopted by Mulholland *et al.* (2013) add the search terms ‘paramedic’ and ‘pre-hospital’, in addition to the terms ‘rural’ and ‘remote’. The search extends beyond the MEDLINE database and incorporates the same search terms across SCOPUS, CINAHL and the University of Tasmania (UTAS) electronic ‘MegaSearch’ library resource. Specific journal searches conducted in the same manner include the *Journal of Emergency Pre-Hospital Care* (JEPHC), and the *Journal of Interprofessional Care*. The SCOPUS search only allowed examination of abstract rather than title and abstract. The UTAS search and CINAHL searches included all fields. On completion of the initial search process, relevant papers were examined for references also appropriate to IPL and rural paramedic care.

Appendix A notes the total number of papers retrieved from an initial search in May 2013, and another conducted in 2018. Following filtering of papers to exclude duplicates and sort for relevance to interprofessional activities among practicing professionals, the initial search methods yielded 24 papers published between 1997 and 2012, with interprofessional themes that include paramedic care in rural and remote areas. None of the papers sourced represented level 1 (systematic review) or level 2 (randomised control trial) evidence (Cochrane Consumer Network, 2013). Conducting a further search using the same terms in 2018 revealed six new works; one of these is the paper by Mulholland *et al*. (2013). At the time of writing this thesis in early 2019 one further relevant paper emerged. The concepts of interest that arose from a full content review of each of these papers were interprofessional education, multidisciplinary teamwork, and interprofessional learning. These are briefly discussed following.

2.5.1 Interprofessional education

Interprofessional education is where two or more professionals learn about, from and with each other to enable effective collaboration and health outcomes (World Health Organization, 2010, p. 10). Although different groups can educate together, this does not necessarily always translate to a learning process and six papers in this review from rural paramedic practice describe educational initiatives, without elaborating learning outcomes.

Early reports of IPE, involving paramedics in rural areas, focus on the 'high end' disaster medicine aspect of pre-hospital care. Castle and Owen (2003) report on paramedics undergoing trench rescue training in South Africa, and how hospital emergency staff have gained patient care experience and awareness of 'in-field' practice from participation in such educational programs (Castle and Owen, 2003, pp. 29-32). Similar benefits have occurred in education among various pre-hospital and emergency department professionals in the USA, with courses designed around terrorism, hazardous materials (HAZMAT), military and disaster response (Miller *et al*., 2006).

More conventional paramedic response, when incorporated with an interprofessional education environment, focuses on the traditional accident and

emergency role of paramedics. Hays (2007) discusses the advantages of different educational activities various professions may be involved in, but incorporation of paramedics was limited to accident scene scenarios, or first aid knowledge, rather than participation in chronic disease cases or home-based assessments. Stafford *et al*. (2010) note the attendance of prehospital providers at an IPE initiative, which incorporated development of rural trauma teams. Whilst this study was primarily concerned with attendance of surgeons, the authors report that prehospital (paramedic) provider attendance numbers at these courses was second only to nursing staff (Stafford *et al*., 2010, p. 694).

Paramedic participation in IPE, however, has extended beyond emergency or first aid care. Bennett *et al*. (2010), when reporting on the perceptions of university academic staff at one Australian university toward IPE initiatives, recognises the contribution of university paramedic schools and included informants from these schools to advise on faculty perceptions of IPE. Mearns, Wilson and Buchanan (2012) note the attendance of paramedics, nurses, doctors and other health professionals at three-day paediatric educational courses in rural and urban Scotland. Although some of the course content included general first aid or paediatric life support, other content was communication, understanding the rights of paediatric patients and child protection issues (Mearns *et al*., 2012, p. 17).

2.5.2 Multiprofessional teamwork

Different to interprofessional education, eleven papers describe multiprofessional teamwork, where diverse professional practitioners work in parallel, each with clear role definitions, specified tasks, and levels of autonomy (Freeth *et al*., 2005, p. xv). In some cases, paramedics worked on ambulances alongside other professions, such as nursing or medicine in the provision of pre-hospital care (Gunnarsson, Svavarsdottir, Duason, Sim, & Munro, 2007). Traditionally however, paramedics responded to patients without initial assistance and incorporated other professions as care progressed. Importantly, this has not only involved medical personnel, but professionals from the police or fire services (Garrett, 2005). Pre-hospital care has also included a multidisciplinary approach, even when other disciplines have not been physically present at an incident. In this case, paramedics have notified a trauma centre of patient condition and sought

advice from other medical personnel at the trauma centre about care of a patient (Gunnels & Wood, 1997; Söderholm *et al*., 2008; Sonnenwald *et al*., 2008).

Several authors acknowledge the importance of paramedics on the multiprofessional team. Harris *et al*. (2011) studied midwives and obstetric care in rural Scotland, and recognise the expertise of paramedics in pre-hospital care, when associated with the management of obstetric emergencies by midwives in rural areas. Danne (2003) suggests multiprofessional trauma courses and the need for more widespread upgrading of paramedic skills in rural areas to deal effectively with trauma patients. Two papers particularly illustrate multiprofessional teamwork that did not involve direct patient care: Gaffney and Johnson (1999) and Sandaal *et. al*. (2011) both recognise the expertise of pre-hospital providers in trauma care, with their inclusion of paramedics on multiprofessional panels of review to determine appropriate trauma management.

One paper adopted a theoretical perspective of paramedic work and provided a link from multiprofessional teamwork to interprofessional education. Campeau (2009) uses a grounded theory approach to examine paramedic scene management, and suggests that in addition to more technical or procedural medical components, paramedic curriculum should involve education in how to negotiate working with allied and non-allied personnel at the scene of patient care. Campeau (2009) offers insights into the synergy that can exist between multiprofessional teamwork and interprofessional education. Although the study was of scene management that incorporated varied personnel in practice, the author suggests such education would also benefit other health care personnel in their understanding the patient/paramedic environment (Campeau, 2009, pp. 215-216).

Acceptance of paramedics in multiprofessional teams has gained ground over the years and, in identifying practice settings as one of four dimensions of paramedic practice, Bowles, van Beek and Anderson (2017), provide confirmation paramedics have increasingly been taking roles in emergency departments, health clinics and extended care facilities alongside other professionals (despite regard for non-emergency care as a non-paramedic duty) (Bowles *et al*., 2017, pp. 7-8). Reaburn, Zolincinski and Fyfe (2017) suggest that current paramedic models of practice can combine with a physicians' assistant model to provide rural paramedics with skills

and knowledge to perform alongside other professionals in delivery of medical care, in pre-hospital, hospital and primary health care environments.

2.5.3 Interprofessional learning

While interprofessional education and multiprofessional teamwork appear in rural paramedic literature, a third theme is that of interprofessional learning. In this case, of the fourteen papers located, some works provided (albeit cursory) acknowledgement of the role of paramedics; yet others offered more comprehensive description of interprofessional activities. Humphreys and Gregory (2012), in their review of major health policy in Australia, refer to the possibility of an expanded scope of practice for paramedics to work more closely with other health professionals in rural areas.

In terms of IPL specifically, in Australia, paramedics have been able to undertake a Graduate Certificate in Remote Paramedic Practice through the Mount Isa Centre for Rural and Remote Health (MICRRH) (James Cook University). This course involves paramedics learning from medical practitioners and other health professionals to become part of a rural primary health care team. Following a review of the program, Reeve, Pashen Mumme, De La Rue and Cheffins (2008) report:

- increased participation in patient education and health promotion;
- increased partnership with other community health care providers;
- increased engagement in service provision; and
- changes to patient care, such as greater interaction, with more time spent in the patient's home environment.

As outlined in Sections 2.2.2 and 2.2.3, paramedic work has sometimes involved more than traditional emergency care, and in rural areas has included a move into primary health care with community involvement, organisational support, professional support, and education and training. Paramedics in rural areas have participated in education sessions with other health professionals, worked informally in assistance roles in emergency departments, and consulted with other health practitioners in patient care planning (Barishansky, 2007; Mulholland *et al*., 2009;

Mulholland, Stirling & Walker, 2009; Stirling, O'Meara, Pedler, Tourle, & Walker, 2007).

Ruston and Tavabie (2011) report on a program in the UK with specific education for paramedics to enable work in community-based health care. These paramedic 'practitioners' undertook placements in general medical practices, both learning from and working with GPs and other health professionals. In an earlier review of these new roles for paramedics in the UK, Cooper and Grant (2009) find a 25% reduction in conveyance to hospital, interprofessional working, the ability for immediate treatment and referral, and high degrees of patient satisfaction.

The Canadian experience adds to relevance in this arena, with three papers supporting a call for a 'community paramedic' role. Here, paramedics have built on strong partnerships with other health, aged care and social services to provide services ranging from home visits to fall prevention, wound care and health care referrals (O'Meara, Ruest, & Martin, 2015; O'Meara, Ruest, & Stirling, 2014; O'Meara *et al*., 2018). Interestingly, in some of these settings, there appears to be more equal power bases than those found elsewhere in the health sector, where formal institutional settings and hierarchical power differentials were evident (O'Meara *et al*., 2015, p. 4).

The contribution to primary care services by paramedics builds on evidence linking rural paramedic practice with interprofessional learning. Hauswald, Raynovich and Brainard (2005) describe an 'advanced care' project with paramedics working cooperatively with nursing and medical staff to provide primary health care services in rural USA. In a continuation of the paramedic practitioners' initiative reported by Ruston and Tavabie (2011), similar schemes have been in operation in the UK since the early 2000's. 'Emergency Care Practitioners' are paramedics trained to work from medical practitioner surgeries, support primary health care teams, attend unscheduled home visits, and arrange hospital admissions, with time divided between local minor injury units and ambulance stations. Other 'paramedic practitioners' have undertaken education in wound care and suturing, joint examination, social needs assessment, antibiotic administration, and radiological referral to provide care in referral with other health professionals (Cooke, 2006;

Cooper *et al*., 2004; Cooper, O'Carroll, Jenkin, & Badger, 2007; Cooper & Grant, 2009; Mason *et al*., 2006; Woollard, 2006).

Emergency Care Practitioners and paramedic practitioners appear in both rural and urban areas of the UK. Evidence from Australia shows that rural paramedics are involved in interprofessional education and practice that has evolved through informal networks. In a major study of case sites across four Australian states, O'Meara, Walker *et al*. (2006), highlight the integration of rural paramedics with other health professionals in the treatment of minor injuries and the provision of primary health care.

Three papers are particularly useful in describing the potential of IPL for rural paramedics. Martin-Misener, Downe-Wamboldt, Cain and Girouard (2009) report on a comprehensive three-year evaluation of a primary health care project on Long and Brier Islands (in Nova Scotia) involving paramedics, nurses, and physicians. The study concludes that not only was there positive collaboration between health team members, but that this model of service also increased access to health care services and was a cost-effective model of patient care in rural communities with low emergency call volumes.

Shah *et al*. (2010) report similar success with a program in rural New York state, where paramedics trained in geriatric care to provide collaborative home-based assessment and care for elderly adults who accessed emergency medical services. Health screening by paramedics resulted in home visits from a nurse or social worker with further evaluation in the fields of vaccinations, advanced directives, formal and informal support services, nutrition, activities of daily living, depression, alcohol and drug abuse, falls, cognition, medication, and home safety.

The third paper, from a different perspective, Brandrud *et al*. (2017), follows an act of terrorism at Utoya Island, Norway, in 2011. Focus groups were conducted of 140 directly involved individuals. Of direct interest was the ability of the closest rural hospital based, some 15 minutes away from the attack, to provide a 100% survival rate for the victims who presented, despite the exceeding of hospital capacity. The monthly local training and quality improvement sessions attended by members of the trauma teams were credited for this success. These sessions included

hospital staff and paramedics, as well as mental health workers and others. The learning achieved during such sessions allowed for the building of relationships and knowledge around professional roles that then enabled the rapid activation of multidisciplinary teams, and the setup of a crisis centre close to the scene at the time of the incident (Brandrud *et al.*, 2017, pp. 807-811).

Although demonstrating the potential benefits for the end users of interprofessional paramedic practice, there is a suggestion that the development of such programs requires a degree of organisational support. The study by Brandrud *et al* (2017) certainly demonstrates the value of support by local hospital management.

In a further example of the influence at organisational level were results from a study by Martin and O'Meara (2019), who conducted an ethnographic study incorporating informal discussions, semi-structured interviews, focus groups and direct observation of two community paramedic operations. These programs were in Ontario, Canada and Colorado, USA. The authors conclude that the innovative nature of community paramedic roles can leave practitioners with a degree of feeling unsupported and misunderstood by their peers. In addition, there was some degree of inconsistency in approach to education. Driving the Canadian model was education based on social determinants of health and community needs; the USA model was largely college-based. They recommend that improved education and communication from paramedic service management, with internal staff and allied health partners, might improve transitional processes and better support a culture that included community paramedicine. Findings also indicate that individuals with excellent communication and interpersonal skills are desirable candidates for community paramedicine roles (Martin & O'Meara, 2019).

Each of these interprofessional learning examples returns to the definition of IPL. The examples are greater than different professions working alongside each other in multidisciplinary teamwork, and they involve more than education alone, where groups learn about, from and with each other. These examples of paramedic involvement in interprofessional learning demonstrate a synthesis of knowledge, skills and professional attitudes aimed at exploring new ways by which to deliver effective patient care.

2.6 Chapter summary

This chapter presents a critical review of the literature in this area and by comparing past historical developments in the field to contemporary examples of practice, helps identify the potential for interprofessional learning to occur within paramedic practice. The traditional view of paramedic practice is one of provision of emergency care and transport within community or industrial settings. This view is changing, with greater integration of emergency services with the overall health system. Paramedics, particularly in rural areas, are working more closely with other professions in new and extended roles that incorporate non-emergency community-based care, preventative medicine, and social care.

Despite these collaborative scenarios, and some evidence of interprofessional learning incorporating paramedic care, gaps in the literature arise. The ways by which different rural groups involved in paramedic care, interact and convey meaning about an interprofessional approach to patient care remain largely underexplored. The relevant literature to date is largely descriptive of certain procedures and programs, with sparse knowledge around interactions of various professions involved: there remains little known of the influence of this activity on aspects such as professional identity or culture. Of note is the absence of any theoretical approach to help define the nature of paramedic practice and interprofessional learning.

Chapter 3 again incorporates a rural focus and extends the discussion from paramedic practice to include specific themes around interprofessional learning.

Chapter 3: Themes on interprofessional learning

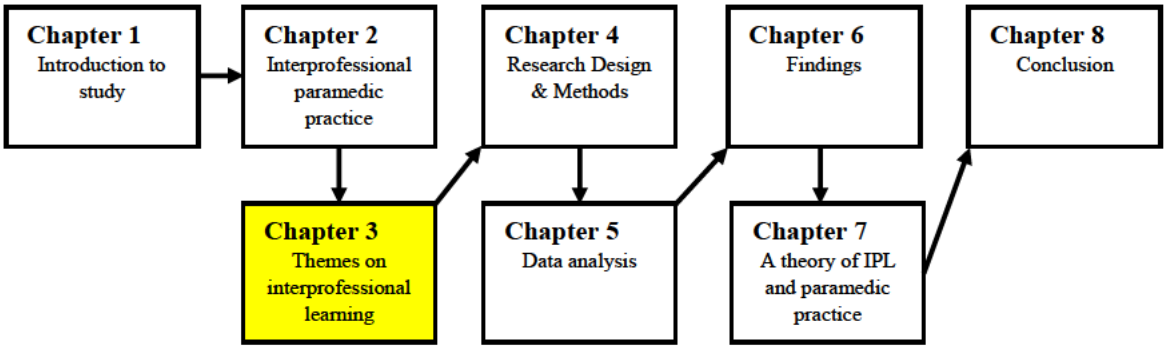


Figure 3.1 Thesis map, Chapter 3

3.1 Introduction

This chapter extends the discussion of paramedic practice introduced in Chapter 2. It introduces various themes around the concept of interprofessional learning and identifies gaps in the literature concerning interprofessional learning and paramedic practice. Section 3.2 commences by noting that in the general interprofessional literature there is a fine line between interprofessional education and interprofessional learning, often with interchangeable terminology.

Section 3.3 specifically considers rural interprofessional literature and, based on a specific search of the rural based interprofessional literature, four main themes are identified: 1) education; 2) collaboration and teamwork; 3) organisation; and 4) power.

Finally, in Section 3.4, although a wide range of theories exists across educational, learning and sociological fields to help explain interprofessional learning, it is argued that theoretical underpinnings for interprofessional learning remain a fledgling area. The information in this chapter, combined with the knowledge around paramedic practice, allows three research questions to be proposed, from which the design and methods of this thesis emerge.

3.2 Interprofessional learning and interprofessional education – A blurred distinction

One of the key concepts of the interprofessional aspects of rural paramedic care (introduced in Sections 2.4 and 2.5), is that of interprofessional education. This demonstrates engagement of rural paramedics in activities where they would train alongside other health professionals, in order to build and understand a shared knowledge of the practice of different health care workers. The literature is largely descriptive of structured educational programs; however, providing a different perspective are the papers concerning interprofessional learning, and here, rather than descriptions, the process of collaboration shows an outcome associated with education about, from and with other health professionals. The knowledge and skills obtained through working and educational relationships with others demonstrates practical outcomes in the delivery of patient care.

The variations in the findings in the studies located clearly indicate there exists a blurring between interprofessional education and interprofessional learning, with the latter often taken to mean the former. Whilst both represent a change of direction from learning and working as totally independent practitioners, interprofessional education is when “two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” (World Health Organization, 2010, p. 13).

Interprofessional learning on the other hand, is more complex, as it encompasses both interprofessional education and interprofessional practice. Interprofessional learning is a “philosophical stance, embracing lifelong learning, adult learning principles and an ongoing active learning process between different cultures and professions. The IPL philosophy supports health professionals working collaboratively in a health care setting. IPL aims to promote purposeful interaction with service users and carers, and quality patient centred care. Learning can be formal or informal” (NCIPECP, 2019).

The aim of this section is to bring attention to some of the crossover that exists between the two and set the groundwork for a discussion of interprofessional learning within a rural context (Section 3.3).

Key aspects in relation to early understanding of interprofessional learning (as a synthesis of different elements around education and practice) are part of a major discussion around interprofessional learning in the United Kingdom by Parsell and Bligh (1998), who use the terms ‘interprofessional learning’ and ‘shared learning’ interchangeably; importantly, they raise the notion of a process, in that interprofessional learning has been more than simply different professions involved in a passive educational experience. The authors allude to a formal learning process of programmes that would incorporate main goals, such as an enhanced understanding of different professional roles, development of skills needed for effective teamwork and increased clinical or skills-based knowledge (Parsell and Bligh: 1998, pp. 89-90).

In support of the growth of IPL, Parsell and Bligh (1998, p. 90) cite emphasis by the World Health Organisation on ‘multiprofessional education’, and the establishment of the UK Centre for the Advancement of Interprofessional Education (CAIPE) in 1987. CAIPE is a membership organisation and UK-based charity, set up to promote health and wellbeing and to improve the health and social care of the public by advancing interprofessional education. In keeping with IPL as a blend of practice and education, there is a suggestion at this early stage in the development of IPL that a large component of IPL had occurred in the field of postgraduate continuing education. For example, in a 1988 CAIPE study in the United Kingdom, most interprofessional learning initiatives were for postgraduates, rather than undergraduates. (Parsell & Bligh, 1998, p. 91).

At the time of their paper, Parsell and Bligh (1998) make mention of the indiscriminate and interchangeable use of the terms ‘interprofessional’, ‘multidisciplinary’ and ‘multiprofessional’, and define ‘interprofessional learning’ as an educational process (Parsell & Bligh 1998, p. 89). This does not mean that interprofessional learning is the same as interprofessional education; rather, that interprofessional education forms part of interprofessional learning. Yet several years on, there remains interchangeable use of terms; now not only between ‘multidisciplinary’, ‘multiprofessional’ and ‘interprofessional’, but also between ‘interprofessional learning’ and ‘interprofessional education’. Further, there is a clear

focus on formal interprofessional education for undergraduates rather than any alternatives that may constitute a translation of this education to practice.

Interprofessional literature reviews are often concerned with IPE rather than specifically targeting IPL. An early, but seminal, review by Zwarenstein *et al*. (1999) argues the need for rigorous evaluation of IPE, prior to widespread introduction of the same. Their subsequent review for the Cochrane Collaboration consists of a search strategy that uses the electronic databases 'Medline' and 'CINAHL, as well as a request through the UK Centre for Advancement of Interprofessional Education (CAIPE) for any further studies not noted in the selected databases. The review uses a specific definition of IPE, a list of 31 categories of profession, and three specific research designs of Randomised Control Trial (RCT), Controlled Before and After Study (CBA), and Interrupted Time Series (ITS). The results indicate that as of the publications to the date of review there was no rigorous evidence for the effectiveness of IPE. The authors were careful to note, however, this did not imply evidence for the ineffectiveness of IPE (Zwarenstein *et al*., 1999, p. 422).

Some ten years on from the initial Cochrane review by Zwarenstein *et al*. (1999) in which no studies on IPE met the specified inclusion criteria, is work by Reeves *et al*. (2009; 2010) which re-visits the initial literature review from 1999, and still recommends the need for continuing study. As with the first, this second review is an examination of IPE literature relevant to post-licensure students, where an intervention or interprofessional exchange took place: education took place; there was report of outcomes related to professional practice, patient care processes, or health and satisfaction; and the intervention used RCT, CBA, or ITS design. The review cites two objectives:

1. to assess the effectiveness of IPE interventions compared with interventions in which the same professions learn separately from each other; and
2. to assess the effectiveness of IPE interventions compared with control groups with no education intervention (Reeves *et al*., 2010, p. 232).

The authors identify six studies that fit the selection criteria and met the second objective; however, none of the studies met the first objective (Reeves *et al*.,

2010, pp. 232-233). The authors concede that although results were positive, it was difficult to generalise findings to all professions undertaking IPE.

The positive outcomes for IPE reported by Reeves *et al.* (2009) are in several areas, and not restricted to educational interventions. Positive outcomes are reported, as follows:

- culture of the emergency department and patient satisfaction (Campbell *et al*., 2001, pp. 135-136);
- collaborative team behaviour and reduced clinical error rates in emergency departments (Morey *et al*., 2002, pp. 1572-1575);
- management of care delivered to domestic violence victims (Thompson *et al*., 2000, pp. 260-263); and
- mental health practitioner competencies related to patient care (Young *et al*., 2005, pp. 973-974).

These four studies also contained multi-faceted interventions, of which IPE was only one component (Reeves *et al*., 2009, p. 7).

In a further literature review, Reeves, Goldman, Burton and Sawatzky-Girling (2010) present a synthesis and critical appraisal of the evidence for IPE. Their examination of literature used electronic search engines Medline, CINAHL, and Google Scholar to identify published and unpublished IPE reviews. Six relevant studies reported on the effects of 181 separate IPE interventions spanning publication dates of 1974 to 2005 (Reeves *et al*., 2010, p. 199). Many studies contained methodological weaknesses, such as only partial description of IPE programs, and little discussion of limitations. There was also widespread use of non-validated instruments and few measures to detect changes in behaviour related to IPE. Of the studies that did examine behavioural elements, positive change was common, and these positive reports were consistent across the theme of reported outcomes. Only a small number of overall studies reported on organisational outcome or changes to clinical outcome (Reeves *et al*., 2010, pp. 201-202).

One often cited way to assess papers for evidence of effectiveness of IPE is the use of the ‘Kirkpatrick Model’, a typology including four levels of training evaluation, developed by Kirkpatrick (1967). Again however, the focus is on IPE

rather than IPL, despite the typology having some relevance to both. Barr, Hammick *et al.* (1999) adapt four levels of Kirkpatrick's (1967) typology to interprofessional education, namely:

1. reaction - or how participants feel about training;
2. learning – covering knowledge, skills and/or change in attitudes;
3. behaviour change – the transfer of knowledge, skills and/or attitudes from education to practice; and
4. organisation/practice change – the structure and process of the organisation of care and health outcomes (Barr, Hammick *et al*., 1999, p. 542).

In their review of the general effects of IPE, Barr, Freeth, Hammick, Koppel and Reeves (2000), locate nineteen published and unpublished studies from the UK. Their findings on these papers include relevant links to Kirkpatrick's (1967) typology, and in using the four levels, create a picture of interprofessional education as an overall learning process. Ten of the nineteen papers identify a positive learning experience for IPE participants, and in twelve studies, were links to the positive effect of IPE on the attitudes of learners toward other professions.

Changes in behaviour became apparent for those who undertook postgraduate related IPE such as continuing education programmes, and the authors suggest the absence of undergraduate evidence is because measurement of possible behaviour change was only effective post-employment. In terms of post-employment, two studies reported on the effect of IPE on the wider community, including improved inter-agency communication and successful implementation of local multidisciplinary teams. Benefits to patient outcome under the level of organisational/practice change were limited to two studies; one on changes to immunisation and cytology rates (Thomas, 1994) and the other, by Hutt (1994) on improved fructosamine levels for diabetic control (Barr *et al*., 2000, pp. 26-28).

As these final two studies show, an interprofessional educational process produces learning outcomes that can be related to patient care. Perhaps Kirkpatrick's (1967) typology, including elements of reaction to training, learning, behaviour change, and organisational/practice change, is relevant not only to delivery of

interprofessional education but also the outcomes attached to interprofessional learning.

Different approaches to some literature reviews have helped build a picture of interprofessional learning, rather than being specifically aimed at IPE. Fleet *et al*. (2008) approach the interprofessional issue by examination of continuing professional development (CPD) for health professionals around the concept of social accountability. The literature search by Fleet *et al*. (2008) uses several databases to locate articles related to CPD, and considers the personal, social, and political aspects of health care, incorporating accountability to patients, community, managers and policy makers. In this context, parallels with interprofessional learning are apparent, and although Fleet *et al*. (2008) refer to this as inter-disciplinary collaboration, many of the studies they locate, provide a mix of IPE and interprofessional practice, that extends further into the realms of interprofessional learning than collaboration alone.

One message to take from these reviews concerning mainly IPE, is that the concept of IPL may lie among the information presented but is not the subject of specific directed investigation. Reeves (2016), in a commentary on the synthesis of systematic reviews for IPE conducted by Reeves, Goldman *et al*. (2010) concludes his discussion with a message that IPE is able to contribute toward improving interprofessional collaboration (Reeves, 2016, p. 193). The aim of this current thesis expands from IPE, to address gaps in the reported literature and provide an investigation targeted at understanding what influences interprofessional learning involving paramedic practice in terms of interaction, learning outcomes and patient benefit. In doing so, new models can be generated by which to understand interprofessional learning in relation to paramedic practice and health service delivery.

In order to examine the literature of IPL more broadly, Section 3.3 discusses the rural theme, introduced in Section 2.5, and investigates interprofessional learning from a rural context.

3.3 Interprofessional learning in a rural context

Chapter 2 outlines the development of paramedic practice, and provides examples of practical working outcomes of interprofessional learning and paramedic practice. This section expands on the few examples from paramedic literature and helps identify gaps present. The rural context continues and assists in the development of themes around interprofessional learning.

Using a similar technique to that described in Section 2.4, this present study explores literature pertaining to IPL in the context of rural health care. This study incorporates the search technique described by Dimoliatis and Roff (2007) and included the nouns ‘collaboration’ and ‘practice’, in addition to the terms ‘rural’ and ‘remote’. A general search using the UTAS ‘Megasearch’ facility, allowed search terms to be utilised across numerous databases, including but not restricted to MEDLINE, SCOPUS, CINAHL, Web of Science and Web of Knowledge. The large amount of general interprofessional literature located necessitated limiting the search to English language research papers post-2000 and to include peer reviewed journal articles and conference proceedings.

Appendix B lists the total numbers of papers located by an initial search conducted in 2014, and subsequent search in 2018. Manual sorting of abstracts of these papers identifies relevance to health care and the definition of interprofessional learning, as used in this study. As the context of IPL in this study involves practice between qualified professionals, further filtering of papers excluded undergraduate interprofessional education where that education did not incorporate actual delivery of patient care; for example, that which delivered solely in a classroom environment.

Following the elimination of duplicate papers and examination of abstracts for relevancy to the definition of interprofessional learning used in this study, the search strategy located 87 relevant papers dealing with interprofessional learning, from either a rural or remote perspective. Readings of these papers reveals four main themes evident in rurally-oriented interprofessional literature, and these are: 1) education; 2) collaboration and teamwork; 3) organisational influence; and 4) power.

3.3.1 Education in the rural setting

The first theme of education identifies a large proportion of interprofessional literature and, importantly, the interprofessional nature of education in rural and remote papers is representative of many professions, not only those of medicine or nursing. Other professions investigated include:

- geriatric psychology (Wharton, Shah, Scogin, & Allen, 2013);
- dental health, environmental health (Deutchman, Nearing, Baumgarten, & Westfall, 2012; Leshabari *et al.*, 2012);
- pre-hospital care (Stafford *et al*., 2010);
- social work, occupational therapy (Gerstenblatt & Gilbert, 2014; Robinson, Hills & Kelly, 2011);
- health science (Mpofu, Late, Daniels, Adonis, & Karuguti, 2014); and
- speech pathology (Kendall *et al*., 2011).

A consensus among papers is that interprofessional education provides various benefits, although some papers are more descriptive and based on subjective observations in their assumptions of benefit: community-oriented interventions certainly fall into this category. In one program, described by Mayne and Glascoff, (2002), nursing and health education students worked in a community-based project and chose the community in which they would participate. They worked closely with community members in a predominantly African American region in rural North Carolina (USA), and attended community meetings, developing knowledge around planning and evaluation of health education (Mayne & Glascoff, 2002, p. 193).

In a similar community-based program, Leshabari *et al*. (2012) examined a pilot program developed by the Tanzanian Muhimbili University of Health and Allied Sciences (MUHAS) to train dentists, doctors, environmental health officers, nurses and pharmacists in collaborative practice. The program, conducted in 2010, consisted of a one-day interprofessional package in the community of Bagamoyo. The community was largely rural, with high rates of poverty, shortage of health care workers, and poorly maintained health services, as well as basic general services. In Bagamoyo's district hospital, health care students spent time in labour or paediatric wards, or antenatal or paediatric clinics. Students observed that each profession

made specific contributions, but that collaboratively could comprehensively formulate a plan for simple medical management (Leshabari *et al*., 2012, p. 143).

Other papers proffer more than descriptions of interprofessional education and utilise both qualitative and quantitative inquiry. One method of investigation of the effect of interprofessional education programs is the use of pre- and post-program surveys. This type of investigation provides varied evidence, including:

- the benefit of regular interprofessional team meetings when conducted in a comfortable and non-threatening environment (Cragg, Hirsh, Jelley, & Barnes, 2010);
- significant improvement in participant response to common mental health problems and interventions (Church *et al.*, 2010; Robinson, Hills & Kelly, 2011); and
- better identification of cultural differences in rural indigenous communities (Amundson, Moulton, Zimmerman, & Johnson, 2008).

Some studies utilise surveys conducted solely of post-education programs. In this case, findings recommend improved understanding of working in rural areas following clinical placement (Kaye, Mwanika, Sekimpi, Tugumisirize, & Sewankambo, 2010). The use of qualitative methods, such as interviews, appears in combination with surveys, such as the study by Stewart, Fielden, Harris and Wheeler (2012), which evaluates an online interprofessional course designed for the mental health sector. Their work indicates that an online component is a useful mode for postgraduate study (Stewart *et al*., 2012, p. 130). Only one paper from the rural and remote sector was a specific literature review. Deutschlander *et al*. (2013) conduct a literature review of articles concerning IPE and the impact of recruitment of new health care graduates in rurally under-served areas.

Relevant literature published between 2004 and 2012 produced sixteen relevant articles for inclusion in the review by Deutschlander *et al* (2013) . There is some indication IPE influenced the decision of graduates to undertake rural employment; however, the authors conclude the evidence is not strong, and there is a need for more theoretical, rigorous studies to assess interprofessional interventions against more traditional education.

One aspect apparent in literature around education and interprofessional activity is that education does not necessarily refer to a traditional classroom approach. In order to provide orientation to interprofessional working practice in a rural environment, clinical placements for undergraduate students are evident in many countries, including: USA (Deutchman *et al*., 2012; Florence *et al*., 2007; Guion, Mishoe, Taft, & Campbell, 2006); Canada (Cragg *et al*., 2010); Australia (Dalton *et al*., 2003; Woodroffe, Spencer, Rooney, & Le, 2012); and Uganda (Kaye *et al*., 2010).

As an alternative to rural placement, the rural clinical experience has also been delivered *via* electronic media such as CD-ROM (Weaver, Kovacich, & Gugliucci, 2000), or through online courses (Robinson *et al*., 2011).

Going further than clinical placement experience in rural areas is the use of interprofessional education to involve participants in community interaction. In some cases, community interaction is remote from the community where practice would take place. For example, the University of New Mexico 'Rural Health Interdisciplinary Program' (RHIP), established in 1991, employed interdisciplinary problem-based learning (PBL) (Vanleit & Cubra, 2005). Students from twelve health professions worked in PBL groups on the campus of the University of New Mexico campus for two months. Problem-based cases were around the seven community sites where students would later work, and analysis suggests the problem-based cases reflected rural New Mexico in terms of demographics and health condition complexity (Vanleit & Cubra, 2005, pp. 417-419).

Another example of physical community placement, the 'Program for Outreach to Interprofessional Services and Education in Medically Underserved Areas' (POISE) of Columbia University Stroud Center (Toner, Ferguson, & Sokal, 2009), had participants placed in underserved areas for geriatric medical and mental health in New York State. POISE participants understood through a combination of role-playing exercises and small group discussions that many professional roles overlapped across disciplines, and that it was possible to communicate better, and to more efficiently share some professional roles, with interprofessional interaction (Toner *et al*., 2009, p. 158).

Comprehensive community involvement with interprofessional education activities demonstrates benefits for both community and interprofessional participants. The 'Partnering for Patient Empowerment through Community Awareness' (PPECA)-II program saw the Hardin Library for Health Sciences partner with the University of Iowa Hospitals and Clinics to develop a patient safety education program (Walton, Childs, Egeland, Brooks & Zipperer, 2010). PPECA-II was multiprofessional and incorporated librarians, public health faculty and hospital quality of care professional in its implementation. Content delivered by librarians included introduction to patient safety, a demonstration on a consumer program on patient safety, and instruction for health professionals on planning a consumer education session.

Four-hour 'train-the-trainer' sessions in a test community in rural Iowa attracted a multidisciplinary audience of health professionals including pharmacists, physicians, nurses, hospice workers, clergy, home care providers, as well as hospital, public and medical librarians. Community-based outcomes include submission of an article to a patient safety newsletter, creation of a program on patient safety for use by a public library and holding a panel discussion on how public libraries can set up their own PPECA programs (Walton *et al*., 2010, pp. 227-231).

In a further demonstration of community interaction Gerstenblatt and Gilbert (2014), discuss a social work service-learning pedagogy, which placed equal importance on student and community benefits. The course took place in a Southern American University, with placements in a rural community two hours from campus. This social work service-learning course had an enrolment of ten students, representing social work, government, international studies, engineering, psychology, theatre, community and regional planning and political science. To build collaborative relationships, students conducted information sessions and listened to what community residents had to say about their strengths and needs. The program oversaw projects such as restoration of a historic Masonic Hall, a community garden, helping a group of local artists, and a support group for young African American women (Gerstenblatt & Gilbert, 2014).

Although the evidence around interprofessional education activities presents as generally positive for both participants and recipients of care, some obstacles do

arise in the process of education for interprofessional practice. The organisational system around development of interprofessional education and training is one such obstruction. Goodrow *et al*. (2001) describe the development of the 'Community Partnerships Program' through East Tennessee State University. The division of health Sciences (DHS) at East Tennessee State University was organised in 1989 to encompass medicine, nursing, public and allied health. Collaboration included joint curricular design, and team teaching. A clash between supporters and opposition to the new program was a source of debate between disciplines (Goodrow *et al*., 2001, p. 135).

In a similar vein Kaye *et al*. (2010) provide a discussion of new interdisciplinary and community placed health care education conducted at Makerere University College of health Sciences in Uganda from 2003. A survey conducted of 107 first year students from medicine, nursing, pharmacy, and medical radiography in 2008 assessed the program. Most thought that the community placement gave them an understanding of working in rural areas and an understanding of non-mainstream medical conditions; however, a major concern was the feedback from those who had exposure to rural health care facilities, and their perceptions that management were arrogant, inconsiderate and aloof to the plight of young staff (Kaye *et al*., 2010, p. 4).

A conclusion from the findings of Kaye *et al*. (2010) is that one obstacle to interprofessional education activities is the negative interaction displayed by some individuals involved with interprofessional education programs. Evidence of this in the rural and remote literature is scarce, but none the less relevant. In one example, the American Board of Surgery adopted the Maintenance of Certificate requirement for surgeons. This required continuous professional development (CPD) through various modalities, with one of these being the Rural Team Development Course developed by the American College of Surgeons Committee. Taught by an interdisciplinary team, twenty-two free courses were offered to nursing staff, physicians and pre-hospital providers (Stafford *et al*., 2010, p. 692). Most of the 234 participants were nurses (60%) and Emergency Medical Technicians (21.8%). Only eighteen physicians took part (7.7%) and no surgeons. An argument arose that perhaps these occupations had busy schedules, preventing attendance at daylong

courses. There was also suggestion that these professions might have preferred traditionally passive means of ongoing education. Regardless, the authors note the lack of surgeon/physician attendance was particularly disheartening in the attempt to promote interdisciplinary teamwork (Stafford *et al*., 2010, pp. 695-696).

In their assessment of the "Hubs and Spokes" model of rural interprofessional placements in NSW, Australia, Craig, Barnard, Glascow and May (2014) similarly note such professional disinterest. During clinical placements involving third year medical and final year allied health, nursing, and pharmacy students, interprofessional teams worked on projects such as stroke care pathways (medicine, OT), pulmonary rehabilitation program (medicine, nursing pharmacy), or a protocol for information flow to residential aged care admissions (medicine, nursing) (Craig *et al*., 2014, p. 177). Most students did feel the rural environment aided their learning process as it allowed them to experience a range of health professionals. Not all students however, felt it was a positive experience and, from the findings, mostly medical students felt that interprofessional learning was of low priority (Craig *et al*., 2014, pp. 181-182).

It appears then that less than positive experiences from interprofessional education activities seems to occur across both undergraduates and experienced professionals. Even so, from the papers here concerning the theme of education, only minor conclusions about the interprofessional involvement of experienced health care professionals can be drawn. Some examples from the paramedic literature demonstrate effective outcomes from interprofessional education or education exercises among groups of professionals. These tend to support the evidence discussed in this section around benefits for the community. However, most of the literature uncovered here concerns undergraduates, and although the theme of interprofessional education can infer a link to IPL, questions are raised around the extent of involvement of experienced health care professionals and the learning outcome that this type of education produces.

3.3.2 Collaboration and teamwork in a rural context

Although some participants experience apprehension or difficulty with interprofessional education activities, many different professionals have found

representation in rural and remote interprofessional literature, and this draws attention to collaboration and teamwork, an important theme at the heart of interprofessional learning.

In some papers, collaboration between teams appears mostly as a statement of general outcomes and which professions are involved, rather than being descriptive of the interprofessional relationships that may be present. In one example, Fertman, Dotson, Mazzocco and Reitz (2005) report on a program designed to prepare allied health students as interdisciplinary team members in rural areas of Western Maryland, USA. The program initially included nursing, social work, physical therapy and occupational therapy at two universities, but by the sixth year (2000) students represented ten allied health disciplines at five universities. Students participated in various approaches at several venues with health promotion activities and teamwork being important parts of the process. Students consistently rated their ability to work on an interdisciplinary team highest on their evaluations, and community members rated positively on cholesterol, blood pressure and glucose screenings (Fertman *et al*., 2005, pp. 164-167). In this case though, there is an absence of further elaboration on the nature of collaboration between individuals or professions within the teams formed.

Other studies offer more regarding the nature of collaboration by moving toward working professionals rather than undergraduates. Gaudet, Kelley and Williams (2014) examine a knowledge gap that exists with respect to rural interprofessional collaboration in the context of palliative care. They investigate the working operations of teams and highlight important areas to rural collaborative processes. Gaudet *et al*. (2014) recruited members of rural palliative care teams and designed interviews around seven essential elements of successful interprofessional collaboration as outlined by Way, Jones and Busing (2000). These elements are:

1. responsibility and accountability, meaning all partners actively participated in decision making and accepted shared responsibility;
2. coordination that included efficient and effective planning, and reduced duplication of efforts or fragmentation of care;
3. communication of both content and relationship;

4. cooperation that involved acknowledgement and respect of other disciplines' professional opinions;
5. assertiveness, whereby practitioners confidently expressed the perspectives of their own profession with knowledge that these will be respected;
6. autonomy by individual care providers to independently make decisions and carry out treatment plan; and
7. mutual trust and respect, binding all the other elements together (Way *et al.*, 2000, pp. 4-7).

Gaudet *et al*. (2014) asked questions as to what extent these seven elements represented rural palliative care teams and if there any other elements present with rural teams. Their findings, across four rural communities in north-western Ontario, Canada, show that the seven elements are incorporated with rural collaborative practice. For example, community palliative care teams did not belong to one organisation or agency in the community, but consisted of employees from many sectors, including health care and social services (Gaudet *et al*., 2014, p. 9).

In rural areas, some evidence of the nature of collaboration is that interprofessional involvement provides participants with a fulfilling experience that corresponds with an interest in future desire to undertake professional practice in areas. Although returning to the undergraduate experience, the 'Interprofessional Rural Program of British Columbia' (IRP*bc*) established in 2003 (Charles, Bainbridge, Copeman-Stewart, Art, & Kassam, 2006) is one such example. By the time of writing their description of the program, Charles *et al.* (2006) state that 62 health care students had taken part in the program, within rural and remote British Columbia. Teams usually consisted of four to six different professions and students were from nursing, social work, medicine, physical therapy, occupational therapy, pharmacy, speech language psychology, audiology, laboratory technology, and counselling psychology (Charles *et al*., 2006, p. 43).

Students had to meet several goals, including the understanding of the roles of interprofessional team members, awareness of professional boundaries, areas of collaboration, and teams and team interactions. Evaluation of the program was done by means of individual and group interviews with participants, debriefing sessions

with students, and a self-reporting system for participating community professionals. Benefits noted are that students reported satisfaction in the ability to participate in a continuum of care in rural areas rather than singular and more specialist urban situations. Rural placements offered the chance to be involved in prevention, home and community care, acute and long-term settings. One consequence of placements was successful recruitment to rural areas, once students had completed their courses (Charles *et al*., 2006, p. 48).

Charles *et al.* (2006) are not alone in suggesting that interprofessional programs foster rural recruitment. Suter *et al*. (2012) recognise a lack of research around the effects of interprofessional interventions on health human resource (HHR) outcomes and conducted a literature review which examines the impact of interprofessional interventions on workplace quality, staff satisfaction, recruitment, retention, turnover, choice of employment and cost effectiveness. Generally, interprofessional interventions increased provider satisfaction and workplace quality and interventions to rural communities or less popular specialities, attracted a higher number of students and possibly higher employment rates. The authors allude to the need for more research to confirm these findings (Suter *et al*., 2012, p. 265).

One factor common to interprofessional collaboration and the desire to work in rural areas is an early exposure to teamwork. A frequent finding in rural and remote areas, this early exposure may be a key factor in effective interprofessional learning. Emami and Feine (2008) note that to accomplish wider collaboration between dental and medical professions, a transfer of knowledge is essential and propose that educational changes in Canadian dental and medical education should incorporate interprofessional experiences (Emami & Feine, 2008, p. 37).

Sedgwick (2011) conducted focus groups and individual interviews in rural Canada to explore interdisciplinary experiences of undergraduate nursing students and rural hospital preceptorships. Sedgwick (2011) concludes that further research was necessary to determine if students needed to possess advanced therapeutic and leadership skills to prepare for an interdisciplinary setting; however, he did suggest early exposure to experiential interdisciplinary education (Sedgwick, 2011, p. 281).

Adding to suggestions of benefits to an early exposure to interprofessional collaboration is one study from Tasmania, Australia, again with undergraduate students. The 'Rural Interprofessional Program Educational Retreat' (RIPPER) provides nursing, medical and pharmacy students relevant situational learning in an interdisciplinary team by use of simulated rural case studies. Woodroffe *et al*. (2012) conducted pre- and post-program questionnaires, as well as focus groups with facilitators to provide a three-year report into the RIPPER program. Ninety students participated in the program (36 medicine, 25 pharmacy, and 29 nursing and midwifery). When asked about the most valuable aspect of the program 90% of students stated that learning alongside other students was the most valued and useful part of their experience (Woodroffe *et al*., 2012, p. 238), with students believing they were more effective members of the heath care team because of the intervention (Woodroffe *et al*., 2012, pp. 239-240).

Notable in the above study is the concept that students valued the ability to learn alongside each other as members of an interprofessional team in a non-threatening environment. Practical evidence of the value of such education among professionals, rather than students, appeared in one study from the rural paramedic literature. Section 2.4.3 discusses the outcomes of a terror attack at Utoya island, Norway, in 2011, during which 69 people were killed, 65 injured and 495 needed ongoing mental health support. In this study, collaborative activities had resulted in the formation of multiprofessional networks established *prior* to the attack. These extended to mental and community health carers and allowed for a multi-pronged response to the disaster (Brandrud *et al*., 2017, p. 811). The study by Brandrud *et al*. (2017) also illustrates the benefit that effective interprofessional collaboration can have on patient care, however, the effect on patient care is not a frequent theme in literature concerning interprofessional teamwork or collaboration.

In some cases, there is an assumption that interprofessional collaboration has a positive effect on patient outcome. In a project funded by the Queensland Health Promotion Council (QHPC), to reduce the incidence and effects of otitis media, there was support for interdisciplinary care; the reason being that active involvement of all service providers, community, and policy makers is the only way for children with

otitis media to achieve their social and educational potential (McSwan, Clinch, & Store, 2001, p. 31).

Other studies suggest more causal links between patient outcome and interprofessional collaboration. The advanced Cardiac Life Support course described by Birnbaum *et al*. (1994) for example, reports a decreased patient mortality (from 17.4% to 13.1%) following multidisciplinary team training (p. 746). Bray, Thompson, Wynn, Cummings and Whetstone (2005) examined the efficacy of combining care management with interdisciplinary group visits for rural African American patients with diabetes. Their study incorporates both a control and intervention group, with care in the intervention group provided across a four-session group-visit education/support program led by a nurse, a physician, a pharmacist and a nutritionist. Results suggest that changed interventions incorporating structured group education visits with an interprofessional basis, provide improved outcomes for diabetic patients. Although limited to one cohort in a rural area, in the intervention group the glycosylated haemoglobin (HbA1c) median baseline (as a measurement of blood glucose) dropped from 8.2% to 7.3% over 11.3 months; whereas the control group rose from 8.3% to 8.6% over the same period. In the intervention group, 61% of patients had a reduction in HbA1c (Bray *et al*., 2005, pp. 320-321).

This use of control and intervention groups in determining the effect of interprofessional collaboration on patient care is rare in the studies set in rural and remote locations; however, work such as retrospective or longitudinal data generation is useful. One retrospective study looked at clinical pharmacy services provided by a rural health centre in collaboration with a nurse practitioner. The medical centre was in a small medically underserved area of Alabama and the only health care service in the township of 1,200. The study investigates changes in mean low density lipoprotein cholesterol (LDL), glycosylated haemoglobin (HbA1c), smoking cessation, and number of times the international normalised ratio (INR) was in range. Over a 32-month trial period, 101 patients were seen by the pharmacist, and results did indicate this collaborative practice resulted in significant improvements in LDL, blood pressure, and HbA1c (Andrus & Clark, 2007, pp. 296-297).

In an example from mental health care, the Deepwater Horizon oil spill in Gulf region of Louisiana in April 2010, saw the formation of the 'Mental Health and Behavioural Health Capacity Projects' (MHBHCP). Here, an interprofessional team (including primary care, psychiatrists, psychologists, social workers, and care managers) provided services. Regular collaborative and consultative meetings with primary care and mental health providers were essential for effective care and follow-up visits showed significant improvements in symptoms of depression, anxiety, and Post-Traumatic Stress Disorder (PTSD), along with improvements in somatic symptoms (Osofsky, Osofsky, Wells, & Weems, 2014, p. 282).

The collaborative and diverse range of professional experience offered by the MHBHCP was in response to community needs, and the benefit to community is a consistent finding across interdisciplinary teamwork and collaboration in rural areas. The 'Interprofessional Rural Program of British Columbia' (IRP*bc*) incorporates students from a wide range of professions from health and human service programs at the University of British Columbia, and reports increased community capacity as a result of a strengthened relationship between communities and post-secondary institutions (Charles *et al*., 2006, pp. 47-48).

Builla (2009) outlines a rural mental health initiative in rural Midwest USA. Membership of the team was open and included social workers, clergy, educators, nurses, counsellors and public health educators. Through collaboration, teams achieved enhanced public awareness of mental health care by the contribution of local newspaper articles by team members, and developed programs such as depression screenings, training for health professionals, presentations about depression and suicide and high school mental awareness programs (Builla, 2009, pp. 364-365).

Similar interprofessional interventions occurred in Ghana (Cofie *et al*., 2014), with a quality improvement program aimed to reduce maternal and child mortality. Teams developed interventions, such as health education through radio broadcasts, public health meetings, home visits and triage systems for severely ill mothers and children. Two types of approaches employed were community outreach designed to raise community awareness of maternal and child health, and direct outreach

consisting of one-on-one sessions with pregnant women, mothers of newborns and family members (Cofie *et al*., 2014, pp. 1188-1190).

The African experience provides another perspective of the community benefits of interprofessional collaboration; namely, the incorporation of specific cultural interaction. Nelms and Gorski (2006) look at the role of traditional healers in rural Africa and suggest the African healer understood the concept of interaction of psychological, social and cultural factors with biochemistry and physiology, and recommend further research into collaboration with medical community personnel (Nelms & Gorski, 2006, pp. 188-189).

In Maputo city and rural Cuamba in Mozambique, Patel, Simbine, Soares, Weiss and Wheeler (2007) investigated random households and determine that psychoses, mental retardation, and seizure disorders were more prevalent in rural areas. The most common causal factors cited were supernatural in nature. For this reason, the authors stressed the importance of collaboration between mental health practitioners and traditional medical practitioners (Patel *et al.*, 2007, pp. 1058-1059).

Rural-based literature suggests differing benefits of interprofessional teamwork and collaboration; however, implementation of this also presents some challenges that need addressing to capitalise on any possible benefits. In a specific examination of barriers to collaboration, Crotty, Henderson, Martinez and Fuller (2014) conducted an online survey with aged care assessment teams, non-government organisations, home and community care teams, metropolitan in patient and community care teams, geriatric evaluation and care teams, domiciliary care, rural residential aged care teams, and rural Directors of Nursing and General Practice of South Australia. Barriers to collaboration include; lack of awareness of services and uncertainty about responsibilities; referral criteria and processes; a perceived lack of formal opportunities to collaborate; and education of staff (Crotty *et al*., 2014, pp. 252-255).

In an earlier study, the same authors explored clinician perceptions of what helps or hinders collaboration across a mental health service network in rural South Australia. Here, the ability to form collaborative partnerships was dependent on a

perceived barrier: the failure to attract staff with mental health experience to rural areas (Crotty, Hendersson, & Fuller, 2012, p. 216).

Further challenges to collaboration and teamwork appear in the form of poor guidelines and an absence of interprofessional education. Van, Mitchell and Krass (2011) examined the nature and intent of interactions between community medical practitioners and pharmacists. They used a grounded theory approach, through one-on-one and telephone interviews with rural and metropolitan community pharmacists in NSW. One pharmacist alluded to a power relationship, with some medical practitioners having the attitude that a doctor is a 'doctor' and above question (Van *et al*., 2011, p. 369); but this was a singular experience. Practitioner elements around teamwork included past professional experiences, and negative experiences can influence collaboration just as much as positive ones. Practitioner accessibility and lack of time appeared to be major reasons for not working together.

An even earlier study into primary care services provided by nurse practitioners and family physicians in rural Canada notes effects where family physicians may have been reluctant to become involved in collaborative care, due to fear of litigation and regulated drug lists may have prevented nurse practitioners from some care (Way, Jones, Baskerville & Busing 2001, p. 1213). Van, Mitchell *et al*. (2011) noted that most participants in their study agree that a set of well-defined protocols for collaborative practice, would enhance teamwork and collaboration (Van *et al*., 2011, p. 370).

3.3.3 Organisational influence on interprofessional learning

The idea that well-defined guidelines or protocols can enhance teamwork or collaboration suggests an organisational influence, and the requirement for positive organisational intervention is part of an interprofessional learning process. This was alluded to somewhat in the paramedic literature, where community need had led to the establishment of extended care paramedic programs. One issue among the challenges facing interprofessional teamwork and collaboration is that of an 'organisational nature'. Of note is the absence of guidelines (Woodhouse, 2009), organised interprofessional education (Smith *et al*., 2007), and operational issues around such education (Drolet, Christianson & Clark 2011). Organisational issues

around interprofessional activity form a distinct theme in the literature and reappear in the findings and discussion presented in chapters 6 and 7.

The importance of considering varied organisational aspects as part of an approach to encouraging effective teamwork is evident in one Australian study into shared care arrangements between generalist community nurses and external nursing teams. The study by Woodhouse (2009) comprises registered nurses within a shared care model of practice involving a general community health team, two external nursing teams, a palliative care team and an aged care team from one rural health area (Greater Southern Area Health Service) in NSW. All had more than five years practical experience. The study design consisted of a ten-point questionnaire aimed at obtaining accurate accounts of the perceptions and experiences of the nursing teams within the shared care model. The researchers presented four themes.

1. Care planning was occurring in isolation from shared care and was specialty specific.
2. There was limited interaction between teams, and a lack of accurate and informative data. Development of systems to assist consultation on care planning would lead to improved case coordination.
3. There was a need to implement guidelines for key workers/case managers. Each team perceived themselves as key workers/case managers and so there was a risk of not sharing information and of overlapping services. Key workers/case managers needed clear identification and an understanding of team roles.
4. Understanding of skills and roles enabled team members to use skills and knowledge and increase cooperation and collaboration between teams (Woodhouse, 2009, p. 22).

Recommendations by Woodhouse (2009, pp. 22-23) are clear education on organisational function and objectives, sound communication frameworks, enhanced care planning skills through education, and co-location of services. Although the study was more multidisciplinary than interprofessional, the operational aspects suggested by the authors have direct parallels with how organisational aspects can influence interprofessional learning environments.

There is some agreement in the literature that support at the organisational level is an essential element in achieving the change required for formalised interprofessional programs and enhancing the environments in which interprofessional learning may take place. Smith *et al*. (2007) approached interprofessional education from an organisational perspective. In their 2007 commentary on the Australian Rural Health Education Network's (ARHEN) position on IPE and practice in health care, Smith *et al.* (2007) state that for professionals to work collaboratively in teams, they must learn interactively, and participate in more than multidisciplinary lectures alone. Suggestions for change aimed at the organisational level include state, federal and higher education intervention for undergraduate curricula, with budget weighting to include interdisciplinary education models (Smith *et al*., 2007).

Similar sentiments are presented in the United States and Canada. Incorporating interdisciplinary support at a US Federal level, Wilson, Rozensky and Weiss (2010) drafted a paper concerning the 'Advisory Committee on Interdisciplinary, Community Based Linkages' (ACICBL). ACICBL was a Federal advisory committee convened through the Health Resources and Services Administration. The first report from ACICBL was in 2001 and both it, and subsequent reports emphasise the need for interdisciplinary and interprofessional initiatives to increase diversity, cultural competence, health disparities, the allied health workforce, the health workforce pipeline, faculty development, the rural health workforce, and use of technology to advance interdisciplinary healthcare (Wilson *et al*., 2010, p. 214).

In Canada, a collaborative partnership between rural communities and Thomson Rivers University, identifies needs and priorities for building capacities for interprofessional placements in two rural communities. Using community-based participatory action workshops, Drolet *et al.* (2011) explore the needs and priorities for interprofessional placements. Discussions reveal allied health professionals are interested in interprofessional placements, but lack organisational support in areas, such as financial resources, accommodation in rural areas, and financial incentives to travel to placement areas (Drolet *et al*., 2011).

The shaping of organisations occurs in some cases in conjunction with interprofessional planning and influences professional perception and interaction. Suchdev *et al*. (2007) offers suggestions as to shape organisational aspects in the development of interprofessional collaboration in practice. Their article relates to the development of sustainable medical care interventions in rural El Salvador; short-term overseas work with seven principles; mission, collaboration, education, service, teamwork, sustainability, and evaluation. For such work, partnerships with local organisations, non-government (NGO) and government organisations is important to achieve a successful mission. Teamwork is ideally built from a diverse range of individual specialties, such as physicians, nurses, physical therapists, health educators, and sustainability is established by consultation with local NGOs and health care workers (Suchdev *et al*., 2007, pp. 318-319).

3.3.4 Power and interprofessional learning in the rural context

As indicated in Section 3.3.3, a diverse range of professional specialities may operate in conjunction with various organisational elements in an interprofessional environment. This, when combined with organisational influence, might indicate the presence of power relationships in interprofessional learning. The concept of power is one theme in the rural interprofessional literature that presents as part of this complex environment; albeit in a small number of papers (eight in total). Despite the small number of papers, valuable information about the diverse nature of power and the potential to influence interprofessional learning is evident. Power in rural based interprofessional literature is multifaceted and can appear in terms of the influence interprofessional learning has on health outcomes or be expressed through professional or individual differences.

Power, when referring to interprofessional activities, is directly relevant to the definition of interprofessional learning, in that IPL aims to promote purposeful interaction with service users and carers in the delivery of quality patient-centred care (NCIPECP, 2019). As a result of a process of integration and synthesis of knowledge to solve problems or explore issues (Parsell & Bligh, 1998, p. 89) improved and sustained community health outcomes eventuate. Evidence of this occurs in some of the community-based interventions, particularly in Canada and the USA (Martin-Misener *et al*., 2012; Shah *et al*., 2010), where paramedics involved

with interprofessional learning are able to deliver new forms of care to the communities in which they operate. In the general rural literature, similar episodes of this community 'empowerment' appear.

One example of community empowerment through interprofessional collaboration comes from Goodrow and Meyers (2000) who describe a project co-run by the rural community of Del Rio and East Tennessee State University. Here a group of interdisciplinary health care students worked with community leaders and residents to develop leadership skills, enhance infrastructure and coordinate efforts to address health concerns. The area involved had a history of short-lived social service programs; residents were sceptical of outside organisations and felt that the community had little power to effect any change. The unique aspect about this program was that the university created sustained partnerships that originated in the local community (Goodrow & Meyers, 2000, p. 215).

The main purposes of the project were to investigate the feasibility of a new primary care clinic, and to remediate a water-borne disease threat. A team of health care students worked with program faculty and citizen groups. Eight students from undergraduate environmental health, public health and health care administration undertook sessions on sampling design, questionnaire development, interview techniques, communication skills and organisational strategies. During a twelve-month period, the students and faculty worked with the community, equipping its members with similar organisational and strategic skills. The leadership of each group was rotated as various parts of the program demanded different skills (Goodrow & Meyers, 2000, pp. 216-217). The project demonstrated that, over time, and given attention to establishing contacts and involving the community, ongoing relationships can develop. Although community members were initially mistrusting and expressed feelings of powerlessness in interactions with outside organisations, they too became empowered to continue ongoing development on an independent basis (Goodrow & Meyers, 2000, p. 219).

Further interprofessional educational initiatives demonstrate the power that lies in the transition to interprofessional learning outcomes. A program at Lakehead University in Ontario educated community-based health professionals in the knowledge and skills required in palliative care (Kelley *et al*., 2004). At the heart of

the program is knowledge that palliative care provision was more diverse than any one profession can provide (Kelley *et al*., 2004, p. 310). An eight-year assessment of the program was done by a survey of 353 providers who had participated. Participants included physicians, as well as nurses, social workers, allied health professionals and volunteers who facilitate long-term care. Participants report that the interprofessional learning achieved enabled them to gather and work toward outcomes related to palliative care in their organisations and communities (Kelley *et al*., 2004, p. 313).

Shaklee, Bigbee and Wall (2012) also note the power of interprofessional learning in establishing community-based patient care outcomes. The authors discuss the potential of a program in rural Idaho, in which educators, community health nurses and social workers collaborate to bring critical services to human services teams in underserved rural areas. In this case, the program was one whereby grandparents cared for children who were involved in family crises. By supporting and educating grandparents using a multiprofessional intervention (a more powerful approach than that which can be achieved by one discipline alone) was implemented in normally under-served rural areas (Shaklee et al., 2012, pp. 394-397).

Evidence of the ways interprofessional collaboration can empower various community groups helps reinforce the positive outcomes achieved when different professionals undergo a cooperative learning process. Power, however, also influences the relationships between different interprofessional groups. In one example from rural Connecticut (in 1999), the establishment of a multidisciplinary team followed discussions about establishing a multidisciplinary approach for the prevention and intervention for victims of child sexual victimisation and domestic violence (Sudderth, 2004). One of the specific obstacles identified by participants was a rift between victim advocates and child protection services, due to a change in leadership, with representation in one organisation by an executive director and in another by a rural coordinator, leading to a power imbalance and difficulty in negotiations (Sudderth, 2004, p. 29).

Similarly, Stone (2008), describes a workshop designed to initiate interprofessional, cross-jurisdictional, and cross-sectoral dialogue around the prescribing of medicines in the ACT. Representatives included health professionals

but also military, private health care, policy makers, tertiary education providers and many clinical support services. The author notes professional defensiveness and the dominant hierarchy of the medical profession, particularly with regards to prescribing, and this remained a major barrier. A gulf was present between those who wanted change and those who did not (Stone, 2008, p. 117).

These power differentials are evident in other rural based literature. The role of psychiatric nurse involvement in interdisciplinary teams is commented on by Grigg (2001), and based on an Australian context. Grigg argues that the psychiatric nurse could bring a breadth of skills to the interdisciplinary team, based on a diverse range of activities (p. 144). The author notes that in rural areas, due to staff shortages, a nurse may work independently on many occasions, thereby providing much of the assessment, treatment, counselling and rehabilitation normally carried out by others in an urban environment. The visiting psychiatrist would collaborate with the nurse and local medical practitioner (Grigg, 2001, p. 144). Nurses worked frequently in positions of management and leadership, but these positions can lead to tensions within teams if the perception was that nurses disproportionately occupied these positions of power. The author argues that different professional groups may come from different models of leadership, and clinical interdisciplinary teams may be at odds with appointed leadership (Grigg, 2001, pp. 144-145).

Grigg (2001, p. 145) further argues for more work around leadership and partnership to present new paradigms of teamwork. In further support of Grigg's (2001) commentary, the concept of power arose in one study into multi-purpose centres in rural NSW. Here, Anderson, Bonner and Grootians (2011) employ a grounded theory approach, utilising interviews with 30 participants, to investigate multi-purpose health care (MPC) sites in rural NSW. 13 sites were involved, with participants being six community members, eleven managers and twelve staff members. The overall desired outcome of the establishment of MPCs was to integrate facilities, whereby pre-existing services became part of a multi-purpose, single coordinated service. Integration incorporates a degree of trust; although some services noted minor change, others 'cashed out' to give new areas control over their funding. This led to the evolution of a community committee with subsequent loss of status for other members in the community (Anderson *et al*., 2011).

Despite such findings, it might be that influence of one group over another, or observations around loss of power bases, can be misconceptions based on a lack of knowledge around other professions. One interdisciplinary rural placement program based in rural Tasmania addresses some of the issues around power in relation to different professions. Dalton *et al*. (2003) describe the implementation of a pilot program conducted over twelve months, commencing in January 2001. Here, two cohorts of nursing, medical and pharmacy students took part in clinical placements at two rural hospitals. Students engaged in formal education sessions and took part in clinical placement with a range of health professionals (Dalton *et al*., 2003, p. 18). Students tended to unite with others of their own disciplines, and main conflicts that arose tended to be around various personalities and accommodation arrangements (Dalton *et al*., 2003, p. 20). There were some initial fears of treatment of nursing students as subordinate, due to pre-conceived impressions of that profession. These fears tended to be unfounded, with nursing students taking lead roles in two ways. They commenced their placement a short time prior to the medical and pharmacy students and had the opportunity to explore local communities and networks. They also had good understanding of research techniques and could take lead roles in a mini research project. They were surprised by levels of acceptance by other disciplines and admitted that perhaps the perception of subordination was entirely on their behalf (Dalton *et al*., 2003, p. 19).

There is some argument that professions can move across traditional discipline-related borders, while still maintaining or even protecting core functions of traditional practice. A reduction of the negative influence of a professional hierarchy can occur through the establishment of mutual respect among different professional groups (Brandstorp, Halvorsen, Sterud, Haugland, & Kirkengen, 2016). By returning to the definition of interprofessional learning and a synthesis of knowledge, perhaps (with careful management in establishment of interprofessional teams, and attention to a symbiotic environment where interprofessional learning can take place) potential problems with professional power bases can be minimised or entirely erased.

As with rural paramedic practice, themes of power, organisation, collaboration and teamwork that appear in general rural interprofessional literature,

are mostly descriptive in nature. In order to help explain the processes involved with interprofessional learning, theoretical backgrounds require consideration. The next section introduces and discusses relevant models and theory related to interprofessional learning.

3.4 Models and theory of interprofessional learning

With various themes in both paramedic and general interprofessional literature mostly based on descriptions of practice, there is a gap in the knowledge offering theoretical explanations of the learning that may have taken place. This section introduces suggested models and theory around interprofessional learning and notes specific areas of teamwork and collaboration, learning methods, course structures and procedures, through to theoretical approaches that cover the more complex nature of interprofessional learning. The aim of the section is to illustrate a diversity in approaches to IPL rather than to describe in full models of practice or individual theory.

3.4.1 An eclectic approach to the theory of interprofessional learning

As this section will attest, a wide range of theories is available by which to help explain the processes of interprofessional learning, however, explicit use of theory is not common. Interprofessional learning is more than simultaneous delivery of educational matter to different professionals and includes learning with, from and about each other. The process of learning should incorporate aspects such as content, knowledge, skills and attitudes (Sargeant, 2009, p. 179). Explanatory work on interprofessional learning includes teamwork and collaboration, learning methods, course structures and procedures, and finally, more diversified theoretical approaches. Table 3.1 illustrates this diversity in listing some of the various models and theoretical approaches relevant to IPL.

Table 3.1 Theoretical approaches relevant to interprofessional learning

Stance taken	Suggested models or theory
Teamwork or collaboration	Models of team intervention (Beer 1980) • Goal setting • Interpersonal • Role model • Problem solving Collaboration (D'Amour, Ferrada-Videla, Rodriguez & Beulieu 2005) • Sharing • Partnership • Interdependency • Power Collaborative frameworks (D'Amour, Ferrada-Videla *et al*. 2005) • Organisation theory • Organisational sociology • Exchange theory • Bi disciplinary models
Approaches to learning	Interactive learning methods (Barr 1996) • Exchange based • Action based • Observation based • Simulation based • Adult learning Process of learning • Adult learning • Psychodynamic theory • Contact theory • Identity theories • Practice theory • Situated learning (Barr, 2013) • Social identity theories • Communities of Practice (Sargeant, 2009) Reflective learning
Course structure and processes	Guiding IPE frameworks (Clark 2006) • Cooperative, collaborative or social learning • Experiential learning • Epistemology and ontology of interdisciplinary inquiry • Cognitive and ethical student development • Education of reflective practitioner Organising ethical issues (Clark, Cott & Drinka 2007) • General guidelines for behaviour • Structures • Processes
Context of learning (Barr 2013)	• Sociology of professions • General Systems Theory • Organisational Theory • Activity Theory • Complexity Theory

The understanding of team interaction is an important basis from which to explain some of the processes behind the construction of an environment conducive to IPL. Poulton and West (1993, p. 922) list four models of team intervention, as identified by Beer (1980):

- the goal setting model of team development, where team members set objectives and identify barriers to achieving these objectives;
- the interpersonal model, based on the assumption that good interpersonal skills are the basis of good teamwork;
- the role model, based on an assumption that a team is a set of interacting roles, and that by building understanding and respect for roles the team will function more effectively; and
- the problem-solving approach, with identification of problems, causes, solutions and implementing action plans.

Although the aim of Poulton and West's (1993) paper is to provide a structure for a specific research project into multidisciplinary teamwork, features of these four distinct models (including goal setting, interpersonal skills, interacting roles and problem solving) appear in other theoretical approaches more directly related to collaboration in general.

The different ways by which team interaction and collaboration can take place are particularly evident in a literature review by D'Amour, Ferrada-Videla, Rodriguez and Beaulieu (2005), where the core concepts and theoretical frameworks of interprofessional collaboration for a ten-year period prior to 2005 were examined. The purpose of the review was to identify conceptual frameworks that can improve understanding of interprofessional collaboration. The paper revealed two main frameworks for team interaction across 27 papers; 17 papers were concerned with concepts related to collaboration and ten with collaborative care frameworks. Concepts related to collaboration include sharing, partnership, interdependency, power and process Collaborative care frameworks had a broader theoretical basis, and appeared under four main headings: collaboration frameworks and organisational theory; collaboration and organisational sociology; collaboration and

exchange theory; and bi-disciplinary models of care (D'Amour *et al*., 2005, pp. 118-119).

The paper by D'Amour *et al.* (2005) demonstrates the diverse ways to potentially approach interprofessional collaboration and teamwork, but is not specific to interprofessional learning. Absent from all models identified by the authors are the client and family as part of the collaborative process (D'Amour *et al*., 2005, p. 126). Despite this oversight, common elements such as sharing, communication, team integration and membership, goal setting, leadership and power appear, with the discussion moving from a general multiprofessional approach to an interprofessional one.

Dealing directly with the learning process, rather than collaboration alone, is a move toward changing the focus on teamwork to include learning methods. Investigating the definition of interprofessional learning as a philosophical stance, embracing lifelong learning, adult learning principles and an ongoing active learning process, between different cultures and professions (NCIPECP, 2019), is a paper by Colyer, Helme and Jones (2005, p. 68) citing Barr (1996), who identifies five types of interactive learning methods that can have interprofessional relevance:

1. exchange-based learning, where participants express views, exchange prejudice and debate ethical issues;
2. action-based learning, which covers investigation and co-working, where students from different professions may combine their expertise to investigate issues and effect change;
3. observation-based learning, where students directly observe patients or clients, or visit each other at different workplaces;
4. simulation-based learning, involving role-play among different professions; and
5. adult-learning, which suggests learners are intrinsically motivated, and learn more permanently and deeply when knowledge has a direct application to practice.

Such interactive learning methods do more than simply describe the ways in which learning may take place; they offer explanations of why and how learning

occurs. Simulation-based learning, for example, is more than role play and may incorporate participants working alongside each other in practical learning environments, such as the training wards (as seen in early examples of interprofessional learning where students from different professions worked in collaboration with each other) (Reeves & Freeth, 2002; Wahlstrom & Sanden, 1998).

Along a similar vein to learning methods, is the discussion of interprofessional education in terms of course structure and processes; however, studies of this topic, from a theoretical standpoint, are scarce. Clark (2006) discusses the need for theoretical concepts to guide the development of course structures and processes; specify learning objectives and effective methods for their achievement; suggest appropriate roles for faculty and students; and aid in research and assessment of program impacts and outcomes. Clark (2006) suggests five different theoretical approaches to guide the development of an IPE framework, and these also link to the interprofessional learning ideas around a synthesis of knowledge between professional groups (p. 578). The approaches suggested by Clark (2006) are:

1. cooperative, collaborative or social learning;
2. experiential learning;
3. epistemology and ontology of interdisciplinary inquiry;
4. cognitive and ethical student development; and
5. education of the reflective practitioner.

In further discussions of interprofessional ethics and how to integrate practice with theory, Clark, Cott and Drinka (2007, p. 593) propose a framework for organising and analysing different types of ethical issues in interprofessional teamwork. This includes three elements:

1. principles that suggest general guidelines for behaviour;
2. structures (formal and informal) that encompass established forms of knowledge and patterns of interprofessional related behaviour within an organisation; and
3. processes, or factors related to the procedural aspects of ethical practice.

Clearly, from the discussion so far, a wide variation exists by which to examine and explain teamwork or collaboration, learning methods, or educational

course structure and processes; however, commonly, essential elements of interprofessional learning, such as individual interaction (including how individuals learn with, from, or about other professionals, and how this learning sees application in practice) are absent.

3.4.2 A change in direction in explaining interprofessional learning

In terms of a process of learning rather than collaboration alone, Sargeant (2009) suggests different theoretical perspectives as being useful to understand different thinking around interprofessional education. In doing so, the individual aspects of teamwork, methods, course structure and procedures previously discussed in section 3.4.1, combine in more complete theoretical perspectives around IPL. Sargeant's (2009) paper specifically advances three specific theoretical approaches for consideration:

1. theories exploring social identity, professionalism and stereotyping which involve exploration of the influence of professional identity, culture and stereotypes;
2. situational learning and Communities of Practice, which foster situated practice-based learning, where participants learn from and about each other with shared knowledge; and
3. reflective learning and learning from experience (Sargeant, 2009, pp. 181-182).

In a similar fashion, Barr (2013), in building on his identification of five types of interactive learning methods (Barr, 1996), comments on a theoretical framework for IPE, and proposes different theories from perspectives of both process and context. In Barr's (2013) article, the process of learning includes:

- Adult Learning – each student is responsible for their own learning; shared between the individual and group in interprofessional learning.
- Psychodynamic Theory – cultivates critical awareness of behaviour in groups, as groups and between groups.
- Contact Theory – the idea of contact in modification of attitudes and perceptions to counter prejudice and negative stereotypes.

- Identity theories – including:
    - Social Identity Theory, where we derive identity from membership of social groups;
    - Self-Categorisation Theory, which retains focus in self and group identity but in an organisational context; and
    - Realistic Conflict Theory where intergroup attitudes and behaviour reflect group objectives.
- Practice Theory – challenges the effectiveness of brief and episodic IPL by emphasising the duration of a common educational experience to establish a collective habitus or identity.
- Situated Learning – co-participation with shared communal learning resources that accommodates complexity and facilitates change. There is constant negotiation and interpretation of activities. The context in which learning takes place is a 'community of practice' (Barr, 2013, pp. 4-6).

Examining learning from a contextual perspective includes:

- Sociology of Professions – Different sociological perspectives exist. From one-point professions actively engage to secure exclusive ownership of areas of knowledge and expertise. From another, professions can act as a force for stability and freedom against the threat of encroaching bureaucracy. Sociological perspectives can also include ways in which people are socialised into the values of their profession.
- General Systems Theory – Treats the whole as more than a sum of its parts. Interactions are purposeful, boundaries permeable, and cause and effect are interdependent.
- Organisational Theory – A subset of Systems Theory. Includes the concept of the learning organisation where members foster a culture of enquiry which is innovative, proactive and continuous.
- Activity Theory – Further related to Systems Theory and seeks to understand and intervene in relations to effect change in interpersonal, interprofessional and inter-agency relations.
- Complexity Theory – Based on the science of complex adaptive systems. Rational deduction may not be appropriate, and linearity may not hold.

> There may be multiple solutions to deal with interdependent clinical, organisational, informational, educational and professional challenges (Barr, 2013, p. 7).

The background of each of these theories is far more complex than the brief descriptions offered here, and as with literature around theory previously notes in this section, does not necessarily mean that each of these theories are used in investigation of IPL; rather that various researchers suggest the potential for their respective use.

3.4.3 Practical use of theory in explaining interprofessional learning

Practical examples do, however, appear where IPL is investigated using theory based on both process and context. In relation to learning process, Arora *et al*. (2010) note three theories at play in their study of a community health care program in New Mexico: Social Cognitive Theory, Situated Learning Theory and Communities of Practice. One of the primary aims of their study is the management of Hepatitis C, involving multiple experts in medical fields, such as medicine, mental health, and substance abuse. In relation to Social Cognitive Theory, three factors influence behaviour: individuals believe the benefit of a new behaviour outweighs the cost, encourages confidence to perform specific behaviour, and there is reinforcement of positive behaviour (Arora *et al*., 2010, pp. 1126-1127).

The basis of Situated Learning Theory relates to social interaction and collaboration, which contributes to the learning process. Here, the use of interactive and collaborative teaching allows learners to extend current skills and knowledge, engages learners' interests, creates manageable tasks, and promotes motivation. Community of Practice Theory, built upon 'situated learning' (where there is a focus on the relationship between learning and the social situation in which it occurs), and a community of learners, establishes technical knowledge and skills associated with the care of patients (Arora *et al*., 2010, p. 1127).

The notion of a community of practice as a social theory also appears as a methodological framework in a study by Brandstorp *et al*. (2016), whilst exploring learning processes to improve *in situ* training in primary care teams. These teams were situated in Alta, northern Norway, and participants included nurses, doctors and

paramedics. Using focus groups and debriefings to elaborate on aspects of these healthcare teams, participants reveal eight areas relating to social theory:

1. Social structure, where team building occurs through allocating roles and tasks.
2. Situated experience, which includes a sense of safety and collective interest in activities.
3. Practice, where practical skills, team building, and communication are enhanced.
4. Identity, involving the appraisal of one's situation as it relates to others.
5. Subjectivity, appearing as self-confidence, mutual trust, and awareness of own limitations.
6. Collectivity, which incorporates group knowledge, team building and inclusion, mutual trust and respect, and collegial support.
7. Power, where non-defensive feedback and training made it easier to admit mistakes, find expected leadership positions, model management skills, and reflect on professional hierarchies.
8. Meaning, with management of patients' and own crises (Brandstorp *et al*., 2016, pp. 296-298).

From a contextual perspective, a study by Robinson and Cottrell (2005), is based on theoretical frameworks and examines multiagency teams in the National Health Service of the UK. Their study consists of a first phase of observation of team meetings, and documentary evidence; a second phase of interviews and recording of critical incidents involving multi-agency work; and a third phase involving focus groups. In the second and third phases they focus on Engestrom's (1999) Activity Theory and the inevitability of conflict, as tasks were redefined and redistributed to guide analysis of learning cycles, conflicts and resolutions on service delivery (Robinson & Cottrell, 2005, p. 549).

Additional research that adopts a contextual perspective, is around consideration of the sociology of professions, and here some researchers cite historical background to make sense of their work. To examine the impact of health reforms in the UK, Elston and Holloway (2001) consider the traditional backgrounds

of nursing and medicine, and papers such as those by Barr (2001, 2007) describe interprofessional education through its evolution over several years and professions.

One paper by DeMatteo and Reeves (2013) uses a Foucauldian approach to explore the experiences of, and thoughts on, interprofessional learning and care of first year health science students in one Canadian university. The use of Foucault is due to his theories on the historical nature of professionalism, and links with the state and economic development. The Foucauldian framework used by DeMatteo and Reeves (2013) incorporates critical discourse analysis (CDA). Foucault viewed this type of analysis as an act of political engagement, requiring contextualisation and attention to the social, historical and political conditions by which to evaluate and challenge "truth" (DeMatteo & Reeves, 2013, pp. 27-29).

In a different theoretical approach, Velde, Greer, Lynch and Escott-Stump (2002) used Chaos Theory. Their paper uses a case study on the 'Interdisciplinary Rural Health Training Program' (IRHTP), based in North Carolina and initiated by East Carolina University. Participants in the program include students and faculty of nursing, medicine, occupational therapy, physical therapy, health information management, nutrition sciences, health education and pharmacy (Velde et *al*., 2002, p. 147). The authors validate the suitability of Chaos Theory, when applied to the IRHTP as an education system. Velde *et al*. (2002) explain Chaos Theory as a system and an open entity consisting of related elements: a continuous flow of energy between the system and its environment means the system gains energy from the environment, which creates varied change. Chaotic systems have resulted from the interaction of randomness, structure and time. A chaotic system consists of bifurcations, which represent a transition of change, and attractors, which are finite or bounded, repetitive in nature and pull a system in chaos toward orderly behaviour. In explanation, the authors give the example of organisation goals, or strategic plans (Velde *et al*., 2002, p. 148) and the IRHTP itself is dynamic in that it changed over time, including changes to personnel, curricula, content, students, community agencies and nature of relationships (Velde *et al*., 2002, p. 149).

In discussing the IRHTP, Velde *et al*. (2002) identify four main traits of Chaos Theory: 1) entropy/negentropy, 2) feedback as a form of energy, 3) attractors, and 4) self-organisation.

Initial energy flow is unidirectional, from the university to communities; however, this changed to multi directional as the program matured. An example of this is an awareness program for breast cancer, in which students and community members could secure funding and expand the project: this illustrates the identification and utilisation of a new source of external energy. Generally, changes in energy result from students themselves and did not depend on their time in the program. One short-term student contributed to new sources of energy by facilitating change beyond their time in the program. On the other hand, a more difficult but longer-term student drained the system of energy through increased use of resources. Feedback is a form of energy whereby meetings and feedback forms provide continual information about the curriculum. An informal feedback system also operates between the IRHPT and community. One example is that when one student failed to meet their commitments, this resulted in the cancelation of all future student participation (Velde *et al*., 2002, p. 150).

Several attractors, which pull the system toward an orderly approach, are evident. One identifiable attractor was the feedback mechanism of community/faculty meetings. Entry and exit points of students were others; as was the culture of the community, which was a periodic attractor in implementing the IRHP (Velde *et al*., 2002, p. 150-151). Evidence of the fourth point related to Chaos Theory, tis that he program was self-organising. Several transformations had evolved since inception, and changes in the local university and community were also evident in terms of personnel, numbers, students, curriculum, schools involved and content (Velde *et al*., 2002, p. 150).

Velde *et al.* (2002) use Chaos Theory to emphasise that interprofessional learning requires information flow to remain open. This can be achieved by:

- use of various technologies;
- promotion of diversity in elements that support the system;
- use of a model of connectivity that extends to individuals, families and associates;
- allowance for the system to move toward self-order; and

- neutralisation of social power bias by an organisational structure supporting equal representation across all elements (Velde *et al*., 2002, p. 152).

Using a totally different theoretical approach, Rodehorst, Wilhelm and Jensen (2005) examine interdisciplinary learning, using Diffusion Theory. They investigate the effectiveness of an interdisciplinary approach in helping health care workers understand overlapping aspects of care in management of asthma. They use clinical simulations in the form of CDs and analyse students' perceptions of interdisciplinary learning. Twenty-six students from two rural health care campuses in Nebraska came from the disciplines of nursing, medicine, respiratory therapy and pharmacy. The researchers use Diffusion Theory as a basis for their study. In comparison with the work initially conducted by Rogers (1995), Rodehorst *et al.* (2005) explain diffusion theory as comprising four elements:

1) innovation, identified as an idea, practice or object that is new to an individual;
2) communication channels or strategies used to communicate the innovation;
3) time for innovation process; and
4) a social system or set of interrelated individuals engaged in joint problem solving to accomplish a common goal (Rodehorst *et al*., 2005, p. 160).

By using a structured theoretical framework, Rodehorst *et al.* (2005) relate relevant themes to an interdisciplinary approach.

The interdisciplinary education at the centre of the study by Rodehorst *et al*. (2005) allows students to see similarities, yet also differences in their professions. Several participants identified an overlap of care between practitioners, which may have challenged interdisciplinary learning. Norms and values exist for each profession, but each also recognised their existence and that interprofessional education can bring forward recognition of these norms and values. The structure of interdisciplinary simulation around the elements of Diffusion Theory (innovation, communication, time, social system) can increase professional orientation in understanding of roles, and reduce barriers caused by role ambiguity. There was recognition of hierarchy by students, but all felt that an interdisciplinary approach

helped lessen professional differences and promote a sense of community (Rodehorst *et al*., 2005, p. 164-165).

Interprofessional learning involves processes of human interaction and as such, a grounded theory approach has seen some use. The study by Woodhouse (2009) discussed in Section 3.3 (concerning nurses involved in a shared care model of practice) adopts a grounded theory approach to examine the interactions of nursing teams in a shared care model. The author states the focus was on human interaction in a naturalistic setting, which was ideal for a grounded theory approach (Woodhouse, 2009, p. 19). The author, however, did not provide any elaboration of grounded theory, other than stating its use.

Grounded theory is also utilised by Smith, Reade, Maar and Jeeves (2017) in their study incorporating a rural wilderness medicine conference (WildER Med) in Northern Ontario, Canada. As with Woodhouse (2009) Smith *et al*. (2017) did not elaborate on how grounded theory was utilised, other than to say its use formed what they labelled a 'theory of sharing' (Smith *et al*., 2017, p. 3). Facilitators and actors at WildEr Med worked together to set patient care scenarios and give feedback to participants. Participants in teamwork scenarios included professionals, such as police officers, physicians, paramedics, nurses, nurse practitioners and health administrators. Sharing was the core concept noted and it explained how team members acquired interprofessional collaboration competencies. Sharing appeared in the strategies of developing common goals, sharing leadership, and developing mutual respect and understanding. Recommendations by Smith *et al*. (2017) include that when designing IPE initiatives, health educators should consider emergency response teams or rural community health care teams to optimise any hidden or informal curriculum contributing to IPL (Smith *et al*., 2017, p. 5).

In relation to conflict in IPL is the issue of power; one of the five concepts around collaboration revealed by D'Amour *et al*. (2005), however the influence of power on interprofessional learning finds limited theoretical support in interprofessional literature. When widening focus from interprofessional learning, power is far from a simple concept and appears in many guises. Foucault for example, although suggesting that understanding of power is intelligible in terms of the techniques through which to exercise it, also believed that there are no necessary

or universal forms for the exercise of power (McHoul & Grace, 1993, p. 64-65). Lukes (2005), mentions power on three dimensions. A one-dimensional aspect simply requires that one party succeeds in affecting what another does (Lukes, 2005, p. 18). In a two-dimensional view, power arises when one party devotes energies to creating or reinforcing social and political values and institutional practices. This prevents others from bringing to the fore any issues that might be detrimental to the first party's set of preferences (Lukes, 2005, p. 20). A three-dimensional view of power regards the first two as too individualistic. It allows for consideration of the ways in which potential issues can operate through social forces, institutional practices, or individuals' decisions. In this view, actual observable conflict may be absent (Lukes, 2005, p. 28).

Although not talking about interprofessional learning, Baldwin (2007) raises an idea of positional power, in dealing with the impact of territory in health care. Baldwin (2007) suggests that in an arena where medical dominance or authority by doctors may be the norm, nurses can take over medical tasks by force or subterfuge; seek to gain support of allies in law, or public opinion; or substantially shift argument to a different level to enable more harmonious working relationships (Baldwin, 2007, p. 100). Baldwin (2007, p. 102) also recognises that power within working relationships has many definitions and meanings. The author quotes from French and Raven (1959) in identifying five types or bases of power;

- reward power, or the perception on the part of one entity that another entity has something of value to be desired by the former;
- coercive power, or the perception of one entity that another has the ability to inflict punishment for the former;
- legitimate power, or the perception on the part of one entity that another has a legitimate right to prescribe conditions or behaviours for the latter;
- referent power, based on the desire for, or extent of, identification of one entity with another; expert power, or one entity's perception of the special knowledge or expertise of the other; and
- expert power, or one entity's perception of the special knowledge or expertise of the other.

A literature review concerning articles dealing with power and conflict in interprofessional education from 1954-2013, identifies 129 as potentially about power, but manual coding located only six articles placing power and conflict at the centre of concern. Of these, only one stood as an exemplar of future investigation of power and IPE and provides the only direct theoretical examination of power issues (Paradis & Whitehead, 2015, p. 404).

In this research by Baker, Egan-Lee, Martimianakis and Reeves (2011) the authors make use of Witz's Model of Professional Closure (Witz, 1992), to explore perspectives and experiences of power. They did this through semi -structured interviews with 132 participants, across a range of health and social care professions sourced from six educational and clinical institutions, and who collaborated to provide a series of IPE activities (Baker *et al*., 2011, p. 100). Witz's Model of Professional Closure includes four different types of closure strategies by which professions interact as organised bodies with traditions, strategic orientations, and a desire to advance members' interests; namely: 1) exclusionary, 2) demarcationary, 3) inclusionary and 4) dual closure.

Exclusionary and inclusionary strategies represent intraprofessional power, whilst demarcationary and dual closure are concerned with interprofessional power relations (Baker *et al*., 2011, pp. 99-100).

Although different approaches to the study of IPL are apparent, one area specific to this current study on IPL and paramedic practice is glaringly absent. This is the investigation of paramedic care and IPL from a theoretical standpoint. From a contextual perspective, Systems Theory is used in relation to interprofessional relationships and paramedic care in a PhD thesis by O'Meara (2002). Although his work is more concerned with building of ambulance models to explain ambulance service practice in rural Victoria, rather than IPL, O'Meara (2002) recognises that pre-hospital research needs to move from a component approach to a more integrated approach. This view was formed by perspectives of ambulance practice gained from ambulance workers, nurses, medical practitioners and lay persons on rural communities (O'Meara, 2002).

Taking a different approach, and in a direct reference to the interprofessional aspects of paramedic work, Johnston and Acker (2016) provide an example where paramedics may work with a local social worker, police officer and community nurse in caring for patients. The authors argue that the work of sociologist Erving Goffman and his interest in face-to-face interaction, might explain how people interact with each other and would have direct relevance to this collaborative experience (Johnston & Acker, 2016). The use of other theories to help explain paramedic practice and interprofessional learning or interprofessional activity is not part of the paramedic literature to date.

3.5 Chapter summary

This chapter presents a background of interprofessional learning, extracted from relevant literature. This creates a means by which an understanding of how collaborative practice between paramedics and other colleagues can translate to interprofessional learning. Despite interprofessional learning being an outcome based on a synthesis of different elements around education and practice, there are often mixed definitions between it and interprofessional education. By way of delineation between the two, education is the method by which to deliver knowledge and skills, and learning is the outcome of this delivery. Interprofessional literature reviews focus on interprofessional education, rather than the associated learning process or outcomes; however, some of the information around IPE does have the potential for translation to the learning process.

While much of the general interprofessional literature concerns the element of interprofessional education, turning to rural interprofessional literature offers an expanded view. Four main themes are evident: namely, education, collaboration and teamwork, organisation, and power. Education forms a major component of both undergraduate and postgraduate training, and is a focus of rural interprofessional literature. The theme of collaboration and teamwork has good representation in rural literature and adds to the understanding of interprofessional learning as an overall concept. A consistent finding across interdisciplinary teamwork and collaboration in rural areas is their benefit to rural communities, with reports of increased community

capacity and general health awareness. Some studies also report positive improvements to elements of individual patient health care.

The themes of education, collaboration and teamwork (and to some extent the influence of organisational systems) are also evident in the literature concerning rural paramedics and interprofessional learning. The fourth theme of power, however, is new to paramedic literature in the context of interprofessional activity. Reference to power inherent in an interprofessional environment appears in the many positive outcomes associated with the introduction of interprofessional interventions among various community groups. Power, however, also influences the relationships between different interprofessional groups and may appear in the form of hierarchical control of one profession over another. With careful management of the establishment of interprofessional teams, and attention to an interdependent environment where interprofessional learning can take place, potential problems with professional power bases can be minimised.

Also absent from the knowledge around paramedic interprofessional practice is the use of theory. Most paramedic literature tends to focus on descriptions, rather than explanations, of practice. This theme is repeated in the general interprofessional domain. A varied range of theories is available by which to help explain the processes of interprofessional learning; however, explicit use of theory specific to IPL remains a fledgling field. Examples of essential elements of interprofessional learning, such as individual interaction, including how individuals learn from, or about other professionals, and how this learning sees application in practice are rare. Also, notably absent is that related to paramedic practice. Certainly, adopting a broader perspective may help further explain the complexities of interprofessional learning and paramedic practice.

Based on the reviews of literature around paramedics and interprofessional learning in Chapter 2, and themes appearing in interprofessional learning in this current Chapter 3, certain gaps appear. Firstly, the ways by which different rural groups involved in paramedic care, interact and convey meaning about an interprofessional approach to patient care remain largely underexplored. With literature to date largely restricted to descriptions of certain procedures and programs, there remains little known of the impact of this activity on aspects such as

professional identity or culture. Secondly, although a theme of power and its influence on the relationship between different interprofessional groups presents in the interprofessional literature, this is a narrative largely absent from paramedic fields of research. Finally, is the absence of any theoretical approach to help define the nature of paramedic practice and interprofessional learning.

In order to address these gaps, Chapter 4 raises three research questions and presents the research design and methods utilised in this thesis. It argues the case for a constructivist grounded theory approach and introduces Critical Incident Technique as a method suitable to discover new information around paramedic care and interprofessional learning.

Chapter 4: Research Design and Methods

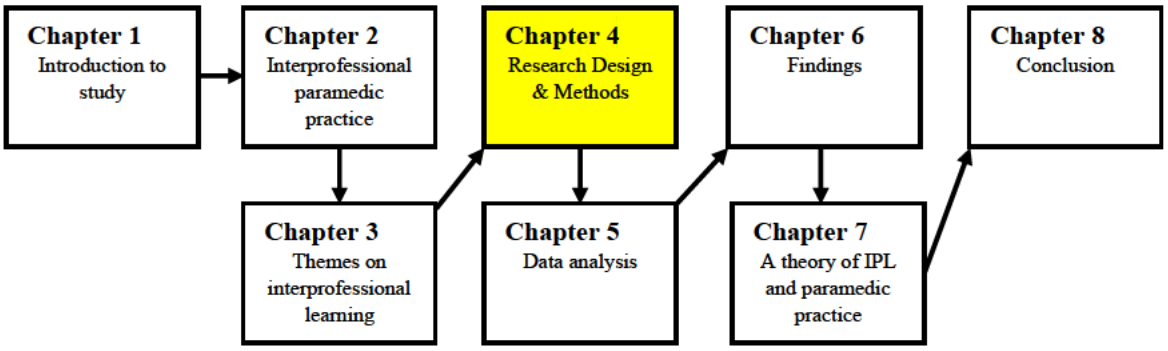


Figure 4.1 Thesis map, Chapter 4

4.1 Introduction

Chapter 3 is a background to interprofessional learning which, in addition to Chapter 2, provides an understanding of how collaborative practice between paramedics and other colleagues incorporate interprofessional learning. Gaps in the literature are present, with many studies generally descriptive rather than theoretical in nature. Little is known of the learning processes that may be involved, the nature of interactions and relationships that may be present, or the influence of power in such relationships.

The aim of this research is to address these gaps by investigating interprofessional learning involving rural paramedic practice in terms of interaction, learning outcomes and patient benefit, and in doing so, raise new models by which to understand interprofessional learning and develop recommendations for paramedic practice and health service delivery that can contribute to enhanced knowledge of interprofessional learning. Consequently, three research questions posed in this study are:

1. **From a rural paramedic perspective, how do workers from different professional backgrounds understand, interact and construct interprofessional relationships?**
2. **To what extent does the nature of power influence interprofessional learning in the rural setting?**

3. **What key implications present for the paramedic profession and interprofessional learning in the rural setting?**

The purpose of this chapter is to detail the research design, strategies and methods adopted in this study. A qualitative constructivist grounded theory perspective, as outlined by Charmaz (2006), provides a general framework for this work. At the time of drafting this thesis, no studies were located that combine constructivist grounded theory, paramedic practice, and interprofessional learning.

Sections 4.2 introduces the qualitative research approach, then a discussion on the use of constructivist paradigm; a construction of knowledge which acknowledges the lived experiences, and interactions of participants (Creswell, 2014, p. 8); is provided in Section 4.3. Section 4.4 on constructivist grounded theory is a general overview of grounded theory as a systematic methodology of inductive inquiry used to construct theory, before describing the specific type of constructivist grounded theory used in this project, and comparing this with other forms of grounded theory. As an adjunct to constructivist grounded theory, this study uses Critical Incident technique (CIT) as a primary means by which to gather data, and a rationale for its use is provided in Section, 4.5, before Section 4.6 outlines the research methods used.

4.2 A qualitative research approach

Qualitative research is based on the written or verbal explanations of the phenomena under investigation, with methods being those collecting data from words, observations, documents and others (Hansen, 2006, p. 4). This study recognises the valuable input that qualitative research has in regard to the preservation of the voices of the participants involved and in putting forward a perspective that is representative of the rural interprofessional work under investigation.

The use of qualitative research as a stand-alone approach to examine paramedic practice and interprofessional interaction treads relatively new ground. Some interprofessional paramedic literature offers only descriptive commentaries on active programs, rather than thorough investigations (Garza, 1994; Mason *et al.*, 2003; Reeve *et al.*, 2008; Woollard, 2006). Methods such as interviews and surveys

appear in some descriptive literature, as in the investigation of an interprofessional paramedic program in the US (Hauswald *et al.*, 2005), and studies around paramedic practitioner and emergency care practitioner programs in the UK (Cooper, O'Carroll, Jenkin, & Badger, 2007; Halter & Ellison, 2008; Squires & Mason, 2004). Using qualitative inquiry alone is rare in paramedic research, but its use helps the voices of participants inform the phenomena under investigation. The work by Gustafsson *et al.* (2010) and Svensson and Fridlund (2008), for example, highlight 'psychological' dimensions of paramedic practice by looking at the experience of 'worry' in the professional lives of Swedish ambulance nurses, and how they coped with this. Here, the participants' voices are clearly heard as meaningful data.

Several characteristics make up qualitative inquiry, and it is the nature of these that strengthens findings of the behaviours, understandings, actions and experiences of the participants in this research study. These characteristics are;

- the use of a natural setting, with the researcher as a key instrument, and where the researcher interacts with participants in their own environment;
- inductive and deductive data analysis, where patterns, categories and themes are built from the bottom upward, in an ever-evolving process;
- participant meanings, not the meanings the researcher may impose; and
- reflexivity, different to the researcher imposing personal meanings, but acknowledging the role of the researcher in the study, and how personal background can hold potential for shaping interpretations (Creswell, 2014, p. 185-186).

This study of paramedic practice was not one of remote questionnaires or surveys, but took place in-field, utilising the researcher's 30 + years of paramedic experience to build intimate knowledge of rural paramedic practice. The qualitative experience allowed themes to emerge from data and for the process of inquiry to evolve as main concepts began to appear.

4.3 A qualitative constructivist paradigm

In asking questions as to how professionals from different backgrounds understand, interact and construct interprofessional relationships (or to what extent the nature of

power might influence interprofessional learning in the rural setting) it is essential that the voices of those professionals involved are to the forefront. The quest for information around paramedic care and interprofessional learning is one which treads relatively new ground, and the methodological approach of choice needs to consider the three research questions posed in Section 4.1.

A qualitative constructivist paradigm sees a construction of knowledge, which acknowledges the lived experiences, and interactions of participants (Creswell, 2014, p. 8). The approach provides an ideal fit with an investigation of IPL, where experiences and purposeful interactions with service users and carers, incorporating quality patient centred care, form a main purpose and background of IPL (NCIPECP, 2019). Constructivism is a social scientific perspective that addresses the construction of these realities. It assumes that people, including researchers, construct the realities in which they participate (Charmaz, 2006, p. 187). Researchers construct concepts and theories out of the stories put forward by research participants who are trying to explain and make sense out of their experiences (Corbin & Strauss, 2008, p. 10). The qualitative constructivist paradigm is an appropriate way by which to address the research questions, as it comprises first-hand accounts from participants that shape the stories of paramedic practice and learning.

The three research questions posed in this study are not framed from a quantitative perspective. This study does not ask how many workers, or what types of worker are involved with interprofessional interaction; rather, the nature and construction of their interactions. Instead of potentially overlooking the 'humanness' of human respondents and determining aspects of the research from an outsider's perspective (Lincoln & Guba, 1985, p. 27), the voices and lived experiences of participants important to this research, are acknowledged and placed to the forefront in a qualitative constructivist approach.

Constructivism sees an immersion in data. Collection of data leads to interpretation of data, which spurs action based on data (Lincoln, Lynham & Guba 2018, p. 118). Constructivist inquiry begins with the experience and asks how participants construct it. The researcher attempts to gain as many views of the phenomenon at hand as possible, while also observing any limitations or constraints. Interpretation of the phenomenon involves acknowledgement that this interpretation

itself is a construction based on engaging the participants and researcher/s in data (Charmaz, 2006, p. 187).

4.4 Constructivist grounded theory as a strategy of inquiry

4.4.1 Overview and emergence of grounded theory

Grounded theory is a systematic methodology of inductive inquiry used to construct theory. The basic premise of grounded theory implies a link with social reality. In the 1960s, sociologists Barney G. Glaser and Anselm L. Strauss (Glaser & Strauss, 1965; Glaser & Strauss, 1967) recognised a gap in knowledge where hospital staff rarely talked about or acknowledged dying and death with seriously ill patients. In their study *Awareness of Dying,* Glaser and Strauss (1965) set out to observe interactions around dying in a variety of settings. They gave data explicit analytical treatment and produced theoretical analysis for the social organisation around dying. In their construction of analyses of dying, they developed systematic methodological strategies that are adaptable for study across other areas (Charmaz, 2006, pp. 4-7). Their book, *The Discovery of Grounded Theory* (Glaser & Strauss, 1967), first articulated these strategies. Glaser and Strauss argue that at the time of proposing grounded theory most sociological method at the time was solely concerned with the obtaining of accurate facts and the rigorous testing of theory.

Grounded theory is the discovery of theory from data and thus intimately linked with data (Glaser & Strauss, 1967, pp. 1-4). Rather than an ethnographic or anthropological development of theory through close observation of human behaviour, the work of Glaser and Strauss is about development of theory from data (Parahoo, 2009, p. 4). Glaser (from a positivist perspective) gave grounded theory its rigour, language, direction and objectives. Strauss, with a pragmatist viewpoint, gave grounded theory an emphasis on agency, meaning and action. Both advocate development of emerging concepts, using comparative methods, and studying processes (Charmaz, Thornberg, & Keane, 2018, p. 414). The original proposal for grounded theory by Glaser and Strauss involves:

- simultaneous involvement in data generation and analysis;

- constructing analytic codes and categories from data, not from preconceived logically deduced hypotheses;
- using the constant comparative method, which involves making comparisons during each stage of the analysis;
- advancing theory development during each step of data generation and analysis, memo writing to elaborate strategies, specify their properties, define relationships between categories and identify gaps;
- sampling aimed toward theory construction, not for population representativeness; and
- conducting the literature review after developing an independent analysis (Charmaz, 2006, pp. 5-6).

Glaser and Strauss (1965, p. 31), note grounded theory may take various forms, but it is not its presentation that makes a theory; rather that theory is something that explains or predicts something. They suggest two basic kinds of theory: substantive and formal. Substantive theory develops for a substantive area of sociology such as patient care, race relations or professional education. Formal theory is for a formal, or conceptual, area or sociology, such as stigma, deviant behaviour, formal organisation, or power or reward systems.

Essentially, Glaser and Strauss propose that theories may fall between "minor working hypotheses" of everyday life and "all inclusive" or "grand theories" (1965, pp. 32-33). As interprofessional learning constitutes an area of sociology incorporating the interactions of paramedics and their colleagues in the delivery of patient care, this study represents the development of substantive theory concerning interprofessional learning and rural paramedic practice.

4.4.2 Points of divergence in grounded theory

Since its development, grounded theory has undertaken various transformations. As noted, Glaser's approach to grounded theory is from a positivist perspective; Strauss was more of a pragmatist. These two different perspectives eventually saw grounded theory fragment into different approaches, and it becomes relevant here to provide a brief discussion of these points of divergence to

understand this study's choice to use a constructivist paradigm in approach to grounded theory. This section covers the original 'classical' grounded theory, and a main point of departure, sometimes known as 'Straussian' grounded theory. Section 4.4 introduces a third departure, and the direction taken in this study, constructivist grounded theory.

Classical grounded theory, as first mooted, adopts the principle of emergence of theory from data. The methodology has a positivist leaning, accepting that researchers may tend to unintentionally influence their field of study with personal bias or interpretation; however, by:

- following coding procedures;
- constantly comparing emerging data for similarities and differences;
- abstaining from the influence of an initial literature read; and
- collecting data from many different sources, a correction for bias will occur and the data will be objective (Kenny & Fourie, 2015, pp. 1273-1274).

Strauss and Corbin (1990), reconfigured aspects of this classical form, and designed a highly systematic and structured approach (sometimes referred to as 'Straussian' grounded theory). It was this more rigourous approach that drew the criticism of Glaser, who maintained that the purpose of grounded theory was to discover, rather than construct, theory (Charmaz, 2006, p. 8; Charmaz *et al*., 2018, p. 414). Strauss and Corbin (1990) classify four coding stages and stress that the researcher should move constantly back and forward between each stage in their advancement toward development of a grounded theory. The coding stages present a more rigid approach to the development of a grounded theory, with the aim of creating clarity around the overall process (Kenny & Fourie, 2015, pp. 1274-1275).

One point of contention between classical and 'Straussian' grounded theory is at what point is the literature consulted. The original argument by Glaser and Strauss (1965) was to look at data, not from a perspective of constructing support from what was already known, but to construct new theory with new insights (Thornberg, 2011, p. 2). This point was one marker where this research into paramedic practice and interprofessional learning diverted from the consideration of classical grounded theory as a research methodology. Corbin and Strauss (2008)

suggest pre-reading technical and non-technical literature as a means by which to stimulate the research; rather than enter grounded theory independent of literature. Here, relatively unexplored areas, or contradictions and ambiguities may arise by which a new approach may contribute clarification around previous knowledge (Corbin & Strauss, 2008, p. 22).

Early consultation of literature, and what was known, formed an essential element in this study of interprofessional learning and rural paramedic practice. Thornberg (2011) discusses problems with delay of the literature review. Entering the research process with a broad knowledge of related concepts, helps avoid preconceptions and mistakenly thinking something is new, when in fact it does already appear in literature. Thornberg (2011, pp. 3-7) advocates using literature as it enriches analysis. It encourages the researcher to take a critical stance, challenge emergent concepts and ideas, help formulate relevant research questions and make constant comparisons between data and literature.

Whilst accepting that pre-reading of literature would aid in the discovery of research gaps and help develop relative questions around interprofessional learning and paramedic care, this did not automatically lead to the selection of 'Straussian' methodology. At further consideration is the construct of symbolic interactionism, representing an underlying philosophical difference between the two approaches. Strauss and Corbin particularly embrace the philosophy of symbolic interactionism in their version of grounded theory, and the approach has gained reputation as being not only complementary but necessary to grounded theory. Symbolic interactionism is a theoretical perspective that assumes people construct selves, society and reality through interaction. The perspective focuses on dynamic relationships between meaning and actions. Meanings arise out of actions, and in turn influence actions (Bryant & Charmaz, 2007, p. 610). Symbolic interactionism assumes all individuals are active, creative, and reflective, and that social life consists of processes (Bryant & Charmaz, 2007, p. 610). Three principles underline symbolic interactionism. First, humans act toward things based on the meanings that the things have for them. Second, meanings are not intrinsically present, but ascribed to objects, gestures, actions, and ideas through social interaction. Third, meanings are always subject to modification through an interpretative process (Blumer, 1986, pp. 2-3).

Both grounded theory and symbolic interactionism have strong compatibilities. Each assume people act both as individuals and collectives, there is an emphasis on building useful theory from empirical observations, and there is development of conditional theories that address specific realities (Bryant & Charmaz, 2007, p. 21). While in some ways beneficial, incorporating symbolic interactionism in this study from the outset would have meant imposing a certain lens on research questions with interaction and behavioural aspects at their core. Linking grounded theory with symbolic interactionism often assumes the two as a theory-method package, with symbolic interactionism imposing a theoretical stance from which to use grounded theory methods. Glaser (2005) especially opposed what he referred to as a "takeover" of grounded theory by symbolic interactionism (Glaser, 2005, p. 1). Glaser (2005) accepts that grounded theory can utilise symbolic interaction type data, along with any other form of data or theoretical perspective, either singularly or in combination, but disagrees that grounded theory is dependent on symbolic interactionism as an overarching theoretical background (to do so reduces grounded theory to a set of methods). The basic premise, and that adopted in this study, is that the researcher must remain open to data and a variety of theoretical perspectives may not be apparent if symbolic interactionism (or any other theoretical approach) applies at the outset (Glaser, 2005, p. 14).

4.4.3 Overview of constructivist grounded theory

The desire to seek new evidence in an area of relatively unknown knowledge, while at the same time adopting a constructivist paradigm and not applying potential bias of one line of inquiry, led this research toward a third divergence in grounded theory; that of constructivist grounded theory. Here, a reflexive stance to the research processes and products considers how theory evolves through interpretation of meaning and action (Charmaz, 2006, p. 131). Figure 4.2 illustrates main characteristics of constructivist grounded theory.

Figure 4.2 Main characteristics of constructivist grounded theory

A constructivist approach to grounded theory, developed by Kathy Charmaz (2000), is rooted in pragmatism and epistemology and the assumption that the researcher constructs data and theories, rather than discovers them, as a result of researcher interactions in the field and with participants (Thornberg, 2011, p. 6). The original 'classical' grounded theory of Glaser and Strauss asks the researcher to enter the field of investigation denying any pre-conceptions, thereby allowing theory to emerge totally from data. A constructivist approach still sees the researcher approaching data with an open mind but acknowledges any preconceptions rather than denying them. In constructivist grounded theory, both data and the researcher form the research process. The process is located within historical, social and situational conditions (Charmaz, 2017, p. 34). Charmaz calls for greater attention to data generation, with examination of research relationships, situations and representation of research participants. This includes reflexivity about the

researchers' standpoints and evolving viewpoints during the research process (Charmaz *et al*., 2018, p. 414). Embracing the 30 + year paramedic experience of the researcher in this study is an integral part of investigation and helped clarify and confirm data from participants. Whilst entering the field with a preconception of interprofessional working in a rural environment, this was not uninformed bias, but based on review of literature and prior experience.

This involvement of the researcher in constructivist grounded theory extends from the data generation process, to the analytical stages of research. Although the branch of grounded theory proposed by Strauss and Corbin is, like a constructivist approach, pragmatic in nature, it presents a more rigid construction. The strict coding structure utilised by Strauss and Corbin has been not only criticised by Glaser, but also by Charmaz who considers it as an excessive "maze of techniques" (Charmaz, 2000, p. 512), transforming the more flexible guidelines of classic grounded theory to more positivist, rigid, narrow and overcomplicated processes.

Of further concern to Charmaz is the axial coding of 'Straussian' grounded theory, which detracts from participants' experiences. Axial coding follows a specific set of relationships; causal conditions; context; intervening conditions; action/interactional strategies; and consequences (Kenny & Fourie, 2015, p. 1277). Constructivist grounded theory seeks to move away from a prescriptive approach to coding, arguing that this stifles the creativity of the researcher. Charmaz stresses flexibility, with the researcher being able to tolerate ambiguity and become receptive of emergent categories and strategies (Charmaz, 2008, p. 168). Once again, the prior experience of the researcher in this study can contribute to building a complete picture of interprofessional learning and paramedic practice. This picture is one greater than individual episodes of IPL and places participants in a social world of paramedic practice with historical and contextual consideration. There is acknowledgement of the researcher as bringing a wide background of knowledge and understanding around paramedic practice, which adds to the relevance of participant data.

Importantly, in a quest to bridge a gap in knowledge around interprofessional learning and rural paramedic practice, a constructivist grounded theory builds from both established and neutral theoretical standpoints. As with the 'Straussian'

approach, constructivist grounded theory also makes use of symbolic interactionism; however, Bryant and Charmaz (2007) maintain that grounded theory should not be bound to this approach, with researchers from varied theoretical persuasions using constructivist grounded theory strategies with sound results (Bryant & Charmaz, 2007, p. 21).

Above all, using constructivist grounded theory overcomes the trap some other grounded theorists fall into, of being fixed in focus on "what is happening" rather than broadening their horizons and examining how social, historical, temporal, and situational contexts of research affect their definitions and explanations (Charmaz, 2017, p. 39). It is these very contexts that provide the setting by which to understand the interaction, learning outcomes and patient benefit that are at the heart of the purpose of this research into interprofessional learning and rural paramedic practice. Constructivist grounded theory lifts this study from the question: what is interprofessional learning? To an investigation of how interprofessional learning occurs, the interactions between the professionals involved, and how the environments in which they work influence these interactions and their products. Rather than simply a method of data gathering, the focus is on the social realities and lives of participants.

4.4.4 Strengths and limitations of constructivist grounded theory

In discussing the decision to use constructive grounded theory in this study, several strengths are apparent over other forms of the methodology. The pragmatic nature of constructivism is a departure from that of a classical and more positivist approach, where there is criticism around research that is determined not from a researcher's perspective, but that of an outsider to the matters of investigation (Lincoln & Guba, 1985, p. 27). Approaching from a constructivist paradigm sees a construction of knowledge, which acknowledges the lived experiences, and interactions of participants (Creswell, 2014, p. 8). Although the work by Corbin and Strauss (2008) also offers a more pragmatic approach than classical grounded theory, constructivist grounded theory frees the researcher from the more rigid structures of coding and analysis that present in 'Straussian' grounded theory (Charmaz *et al*., 2018, p. 414).

One critique of constructivist grounded theory comes from Glaser (2002), who issues caution around placing too much importance on the value of researcher reflexivity as an essential part of the data. Glaser (2002) argues that constructivist grounded theory does not take data as it comes from participants, but rather injects this with personal researcher interpretation. This results in an "unwarranted intrusion of the researcher" (Glaser, 2002, p. 3). Glaser (2002) argues that a researcher's own views can lead to missing abstractions involved in data gathering and analysis (Glaser, 2002, p. 3). If garnering data through an interview guide that forces, or feeds interview responses based on interviewer bias, then the basic premise of grounded theory collapses (Glaser, 2002, p. 3). This study recognises this criticism but counters it, in that rather than failing to notice abstract ideas from data, a researcher with considerable experience in the field of study can recognise and act on nuances in data. These, nuances, to an inexperienced eye, may go unnoticed.

In further refute of Glaser's (2002) criticism, various measures are in place in this research to help minimise the potential for bias. Addressing Glaser's (2002) concerns around a forced interview process, the interview schedule (Appendix I), is of such a design to encourage free thought from participants around effective and less effective elements of episodes of collaboration with paramedics. Additionally reducing any bias during interviews and later data analysis, is that the researcher has considerable experience in the field of study, extending across some 40 years practice in both nursing and paramedic practice. Rather than imposing a limited paramedic based cultural filter, this encourages wider interpretation of the meanings in participant data (Green, Creswell, Shope & Plano Clark, 2007, p. 486).

Section 4.6 unpacks in greater detail where bias is minimised. Although the primary researcher conducts data collection, participants have the option for interviews to be conducted by study supervisors if they have privacy or anonymity concerns (refer p. 147). Each participant too, is offered a review of their individual transcript in order to validate what has been recorded (refer p. 151). The use of different sites, different models of paramedic practice and varied types of participants (refer Table 4.2, p. 145) allows for a wide-ranging data set from which to triangulate evidence across emerging theoretical categories. Likewise, ongoing gathering of data is based on the concept of theoretical sampling (Charmaz, 2006,

p.96), where additional sites and participants arise in order to help build upon emerging categories or provide new ones. During the process of data analysis (Chapter 5), cross verification of data takes place with initial independent coding conducted by the researcher and research supervisors. This is followed by group discussion as a means by which new ideas can emerge or by which to resolve potential differences in opinion (refer p. 169). Finally, presentation of findings in this study (Chapter 6), preserve the voices of participants in the use of direct quotes. In this way, the reader becomes intimately involved with the grounding sources of data within this study.

Further criticisms of a constructivist approach are levelled at grounded theory in general. Varied approaches to grounded theory raise questions about credibility and, indeed, much work evolving from grounded theory was initially under attack for perceived lacking in scientific procedures and rigour. Consequently, there was a need for a process to track and validate the process of theory building (Goulding, 2005, p. 295).

Certainly, there is some perception grounded theory is easy to use; however, grounded theory is in fact complex, with challenging data generation and analysis. Grounded theory researchers make multiple theoretical decisions on collection, analysis and presentation of data (Gelling, 2011, pp. 4-5). The original classical approach to grounded theory emphasises two main criteria for judging adequacy of emerging grounded theory. One, that it fits the situation and two, that it works, helping people make sense of their experiences and making the situation better. Theory should be understandable, general and allow partial control (Cooney, 2011, p. 18). Charmaz (2006) argues the importance of researching for quality and the importance of choosing the most appropriate methods to conduct grounded theory. Charmaz (2006, pp. 14-18) also notes the qualitative approach of grounded theory has advantages over a quantitative approach in that new pieces of data can add to the research picture during data gathering and analysis.

The question of credibility pertains to qualitative research in general, which also includes other measures of trustworthiness, including transferability, dependability and confirmability (Lincoln & Guba, 1985, pp. 300-325). Charmaz (2006) notes several questions relating to credibility:

- Does the project achieved intimate familiarity with the topic or setting?
- Are the data sufficient to merit the claims made?
- Have there been systematic comparisons between observations and between categories?
- Do the categories cover a wide range of empirical observations?
- Are there strong logical links between data, analysis and argument?
- Does the research provide enough evidence to form an independent assessment? (Charmaz, 2006, p. 182).

Transferability depends on hypotheses based on rich descriptions (Lincoln & Guba, 1985, p. 316). The dependability of a project in some ways links back to credibility, as a credible project may also be dependable. Techniques to establish dependability can include the use of different teams to deal with data sources or subjecting the project to an audit of processes (Lincoln & Guba, 1985, pp. 316-318). Confirmability is the ability to establish an audit trail from pre-project and formalisation, through to determination of trustworthiness and completion of project (Lincoln & Guba, 1985, pp. 318-327).

In order to further strengthen the quality and rigour of constructivist grounded theory, Charmaz (2006, pp. 182-183) notes additional criteria should apply. In addition to credibility, these are originality, resonance, and usefulness. With the concept of originality, the project should offer new insights, with analysis providing new conceptual rendering of the data. The work should have some social and theoretical significance, and offer some challenge, extension or refinement of current ideas, concepts or practice. To be resonant, the categories revealed should portray a fullness of the studied experience, with links to larger collectives or institutions and individual lives. The grounded theory itself should make sense to the participants or people that share the circumstances studied. Usefulness refers to the implication that the study can offer interpretations that can be of use in everyday practice. The study should contribute to knowledge, and spark questions around further research. This study of interprofessional learning and paramedic practice is mindful of these additional criteria for constructivist grounded theory, with each incorporated in the study design and methods, in addition to criteria for qualitative approach in general.

4.4.5 Interprofessional learning and grounded theory

Grounded theory use, or at least its description by researchers in the interprofessional domain, tends to fall into two main camps. One, where it is utilised mainly as a method for analysis of data, and second, where investigators state how a grounded theory approach is part of an overall research design. The types of interprofessional activity described in reference to grounded theory also cover two principal areas; that of interprofessional education (mainly for undergraduates,) and that of collaboration between professionals in practical application. Examples of the types of postgraduate practice subject to grounded theory examination are between:

- medical practitioners and pharmacists (Rieck, 2014);
- mental health workers (Ren, Wang, & Zhang, 2016);
- community-based physicians and chiropractors (Mior, Barnsley, Boon, Ashbury, & Haig, 2010);
- clinical staff and patients in rural hospitals (Casimiro, Hall, Kuziemsky, O'Connor, & Varpio, 2015);
- staff in stroke care units (Clarke, 2010);
- palliative care workers, patients and families (Ho, Jameson, & Pavlish, 2016);
- nurse practitioners and other staff (Hurlock-Chorostecki, Forchuk, Orchard, Reeves, & Van Soren, 2013; Hurlock-Chorostecki, Forchuk, Orchard, Van Soren, & Reeves, 2014); and
- nurses and doctors (Leever *et al*., 2010).

There is limited use of grounded theory relating to interprofessional activity and paramedic practice. A search of papers *via* the University of Tasmania MegaSearch facility, using the terms paramedic and grounded theory in abstracts between the years 2000 and October 2018, reveals only seven papers, of which only two were relevant to general interprofessional activities. One is an insight into a GP referral system in the UK involving paramedics (Blodgett *et al*., 2016); the other investigates how villagers in socially deprived and mine infested villages in Iraq experienced the establishment of paramedic and first responder teams (Wisborg *et al*., 2008).

Grounded theory in some interprofessional studies tends to appear as a method as opposed to development of new theoretical understanding. Indeed, grounded theory appears in methods sections, but not in the abstracts of articles. Some researchers have been up front in stating the use of grounded theory methods solely to help analyse data. Salm, Greenberg, Pitzel and Cripps (2010) for example, explore an interprofessional education practicum for pre-service professionals from nursing, education, justice studies, kinesiology and health studies and social work at the university of Regina in Saskatchewan, Canada. In their paper they only note case study methodology, and the use of initial and focused coding, to help further develop main themes and concepts as *per* grounded theory (Salm *et al*., 2010, p. 254).

Similarly, other studies utilise this methodology to investigate interprofessional education programs (Boland, Scott, Kim, White, & Adams, 2016; Gallagher *et al.,* 2015). Grounded theory is used as a methodology to investigate paramedic education programs and their relevance to clinical practice (Donaghy, 2010), but is absent when concerning undergraduate interprofessional programs incorporating paramedics.

In some cases, the use of grounded theory is mentioned without further elaboration (Hart, 2011; Van *et al*., 2011); however, one key area to note, is that grounded theory, even when described in a limited fashion, is used in conjunction with other methods. The study by Salm *et al* (2010), for example, utilises case study methodology. In another example, Yamamoto *et al*. (2014), use quantitative survey data to develop a tool for measurement of collaborative practice, supporting these data with a grounded theory approach to analyse interview material (Yamamoto *et al*., 2014).

Similar mixed method studies note grounded theory as a analytic tool for qualitative data, but have gone one step further by stating their use of grounded theory follows methods developed by Strauss and Corbin (Kinnair, Anderson, & Thorpe, 2012), allows the researchers to enter the field of study without any pre-conceived ideas (Sims, 2011), or have used traditional coding, constant comparison, memos and diagrams (Mischo-Kelling *et al*., 2015). All are elements of grounded theory analysis.

Rather than mention only the general terminology of grounded theory, other interprofessional related research reveals greater depth to the overall process. There are, for example, references to the use of specific coding methods such as constant comparison, line by line or axial coding to develop categories from subcategories. However, these references to coding include explanations of how these categories came about. Rieck (2014), for example, in a study designed to understand relationships between medical practitioners and pharmacists in Australian primary health care, notes the grouping of similar sentences from interview data, helps form themes from these groupings (Rieck, 2014, p. 441).

Some literature provides demonstrations of the interpretations of codes, and then their transition to sub-categories and themes (Jeffs, Lingard, Berta, & Baker, 2012; Wong, Breiner, & Mylopoulos, 2014). In terms of when to cease the gathering of data, some papers discuss recruitment of participants around themes emerging from data and continuing until no new themes become apparent. (Rieck, 2014; Wong *et al*., 2014). Also, importantly, is the aspect of cross member checking, whereby the categories and themes that did emerge from a grounded theory approach were subjected to verification by one or more researchers (Casimiro *et al*., 2015; Clarke, 2010; Ho *et al*., 2016; Murray-Davis, Marshall, & Gordon, 2014; Pype *et al*., 2013).

The use of grounded theory to investigate interprofessional activities means researchers are reliably able to advance qualitative data to sub categories, categories and main themes; however, grounded theory is more than this and, as Glaser and Strauss (1965, p. 31) point out, it is not about presentation of theory, rather the ability to explain or predict. Although there is some debate over the use of prior literature before or after analysis, the use of literature in grounded theory (as adopted in this study) remains an essential step in the advance from categories and themes to theoretical understanding. The analytical process sees enhancement by the explanation of fit to existing theories and relevant literature. Some researchers elaborate on how the categories and themes they developed from data relate to previous relevant theories.

In their assessment of whether an interprofessional education program can mitigate stressors experienced through the introduction of new technologies, Gillan, Wiljer, Harnett, Briggs and Catton (2010), describe models of learner outcomes

developed by Kirkpatrick and further modified by Barr (2005) (in Gillan *et al*., 2010, p. 711). Gillan *et al*. (2010) later show how their results tie in with these models, explaining the ways IPE can then further advance through the processes of change as described by Kane (2007). This includes how to use modern technologies, how to interpret their use, the goals of treatment, and advancement of new understanding (Kane, 2007, p. 223).

With the use of grounded theory to investigate paramedic practice and interprofessional learning being generally very limited, only one interprofessional paper stands out as an exemplar for comparison of design. The paper by Green conceptualises the social processes that constitute activities in IPE and collaborative practices (2013). It is the only grounded theory paper mentioned in an article by Reeves and Heane (2013), which seeks to discuss the use of theory in the interprofessional arena. Green (2013) outlines in detail the use of grounded theory in developing new theoretical understanding for the topic under investigation and the it serves as a useful summary as to how grounded theory can be used in interprofessional study. The concept behind the study by Green (2013) is that IPE initiatives often draw on explanations from theory, but there was little theory derived directly from data. Green (2013) uses a grounded theory approach, not only from an analytical perspective, but also elaborates on the outcome with a social process named 'relative distancing'. Green's definition of relative distancing is a set of strategies employed by participants to construct their own personal identities and negotiate interprofessional interactions (Green, 2013, p. 34).

Green (2013) recruited a sample of twenty-eight students from a pre-registration interprofessional master's program in the UK and conducted semi-structured interviews. The paper outlines the ongoing data analytical process of grounded theory, in that early data sources led to the idea that student experiences in practice placements were influential on students' learning. The idea of distancing emerged after the third interview and raised as conceptually integrative after the twenty-third interview (Green, 2013, p. 35). Further development of the project then led to new interviews with program leaders, and participant observation in ward settings, and then included the use of participant diaries (Green, 2013, p. 35).

Green (2013) elaborates a process of coding with initial open coding, leading to more focused coding and then development of categories. Questions include:

- What was the study of?
- What category did each revealed incident indicate?
- What point of view did this data represent? (Green, 2013, p. 35).

The paper is explicit in that its purpose was to describe the construct of relative distancing. Examples of transcripts and explanations as to the coding and analytical processes, were provided (Green, 2013, pp. 36-39). The discussion section uses literature and existing theory to help build support for the theoretical construct of relative distancing (Green, 2013, pp. 39-41).

The unambiguous way in which Green (2013) outlines and describes the utilisation of grounded theory provides a strong basis for understanding grounded theory as a methodological process, not only a set of methods. Transferring this to a context of paramedic practice and interprofessional learning ensures that this current study offers a transparent approach to investigation and the development of a grounded theory. As noted in Section 4.4, the use of grounded theory in paramedic practice is uncommon; its use to present new theoretical understanding, rather than as a method, of analysis is rarer. Campeau (2011), using the methodology, proposes a new term of paramedic 'kairotope', meaning the conceptualising of paramedic expertise as when and where to act in a field or clinical situation, and Simpson *et al.* (2017) employ constructivist grounded theory in order to develop theoretical understanding around the decision-making processes involved in caring for older fallers. At the time of writing this thesis no papers are located that combine constructivist grounded theory, paramedic practice, and interprofessional learning.

In developing the methods and analysis described in Sections 4.6 to 5.3 there is an acute awareness that this research treads new ground. This study approaches grounded theory from a pragmatic, constructivist point of view. The idea is not to treat grounded theory as a prescriptive set of methods, but as a methodology by which to interpret emerging themes in data with the aim to investigate potential new concepts relating to paramedic care and interprofessional learning. Charmaz (1990) lists four phases in a grounded theory approach. The first of these; developing and

refining the research and data collection questions, emerges through the literature reviews of Chapters 2 and 3 and through this current Chapter's discussion on methodology. The remainder of Chapter 4 will elaborate on specifics of the research design and methods. Chapter 5, in detailing the process of analysis explains the remaining three phases: of raising terms to concepts, asking more conceptual questions on a generic level and making further discoveries and clarifying concepts.

4.5 Critical Incident Technique – an adjunct to constructivist grounded theory

Thus far, this chapter presents a case for the use of constructivist grounded theory as a means by which to uncover interprofessional learning where rural paramedics are involved. This section now delves further into the use of grounded theory, and puts forward a specific method which has guided the interviews (discussed in Section 4.6) in this grounded theory investigation. This method is Critical Incident Technique (CIT).

Whilst the premise of grounded theory is to approach with an open mind, allowing concepts to emerge from data, the use of a specific interview technique (such as CIT) helps maintain criteria by which to judge this qualitative approach. Transferability of this project finds strength in the use of CIT in that by asking participants about areas of effective or less effective collaboration, rich descriptions of interprofessional collaboration are generated. While the use of CIT has not made the project 'mixed methods', it contributes a multi-methods approach, and so enhances credibility, combining data from CIT interviews with other data such as memos from grounded theory, in building a picture of IPL and paramedic care.

4.5.1 Critical Incident Technique – an overview

The aim of this study (to address gaps in reported literature and investigate interprofessional learning involving rural paramedic practice in terms of interaction, learning outcomes and patient benefit) are directly relevant to investigation by CIT. Observation of a defined event, and positive or negative elements attributed to the event, are key factors that form the basis of CIT. CIT is generally credited to John Flanagan (1954), whose original paper explains how CIT evolved from studies

conducted in the Aviation Psychology program of the United States Army Air Forces (USAAF) during and following World War II. In this paper, CIT is defined by Flanagan as:

> *A set of procedures for collecting direct observations of human behaviour in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles. The Critical Incident technique outlines procedures for collecting observed incidents having special significance and meeting systematically defined criteria* (1954, p. 327).

Flanagan (1954) defines an incident as any observable human activity that allows for inferences and prediction about the person performing the act. Further to this, a critical incident is a specific event about which the person involved can judge positive or negative, effective or non-effective elements, and the behaviour observed makes a significant contribution to the aim of the activity (Flanagan, 1954, p. 338; Norman, Redfern, Tomalin, & Oliver, 1992, p. 595; Schluter, Seaton, & Chaboyer, 2008, p. 108). Using CIT, combined within a grounded theory approach, paramedic interactions with other professionals, the positive and less positive elements of these interactions, in addition to predictable aspects and what forms of collaboration are significant, comprises a basis for collection and analysis of data in this study.

As a descriptive method, and in pursuit of evidence for which there is little prior knowledge, CIT comes to the fore. There is evidence of incorporation of CIT with methodologies such as grounded theory, ethnography, or phenomenology. The use of CIT in phenomenology, for example, allows researchers to investigate "real life" experiences, reporting in a way that protects the context of those experiences (Reed, 1994, p. 336). In ethnography, examination of these 'real life' experiences occur from the perspective of an 'insider' to the area of investigation (Conway, 1998, p. 76). In the context of grounded Theory, CIT provides additional information in many areas of healthcare practice. Examples include:

- the role of nurses in helping elderly gain access to community resources (Pettigrew, 1996);

- the process of care provided by community-based geriatric teams (Robinson & Drinkwater, 2000);
- understanding of the need for mental health care nurses (Jackson & Stevenson, 2000);
- clinical decision making of paediatric rehabilitation specialists (King *et al*., 2007);
- the professional identity of social workers as counsellors and psychotherapists; prescribing decisions of doctors (Lewis & Tully, 2009); and
- the identification of the needs of breast cancer patients from the patient point of view (Lilliehorn, Hamberg, Kero & Salander 2010).

The studies by Lewis and Tully (2009) particularly sum up the strength of alignment of CIT with grounded theory, in that it avoids generalisation and estimation (Lewis & Tully, 2009, p. 1152). Lilliehorn *et al*. (2010) also note it did not impose pre-determined categories on their research outcomes (Lilliehorn *et al*., 2010, p. 811).

CIT, then, is an appropriate and established method by which to conduct investigation in various domains of human activity. Its usefulness in establishing new knowledge links suitably with a grounded theory approach; indeed, there is evidence of grounded theory study that has made use of CIT. In addition to an association with grounded theory, CIT is used in investigation across a variety of paramedic practices. In a literature review by Mulholland *et al.* (2015) CIT is linked to inquiry around paramedic practice, including physical dimensions of job performance, teamwork and communication, psychological dimensions of work, student learning and experience, and patient care.

Using these areas of paramedic research as a template, Mulholland *et al*. (2015) further propose a seven-stage process for using CIT (see Figure 4.3). This study of IPL and rural paramedic practice incorporates this general process and adapts the analytical component in line with concepts of grounded theory analysis, ensuring compliance with areas of trustworthiness of qualitative research, and

criteria for judging constructivist grounded theory. Chapter 5 further outlines these areas of analysis.

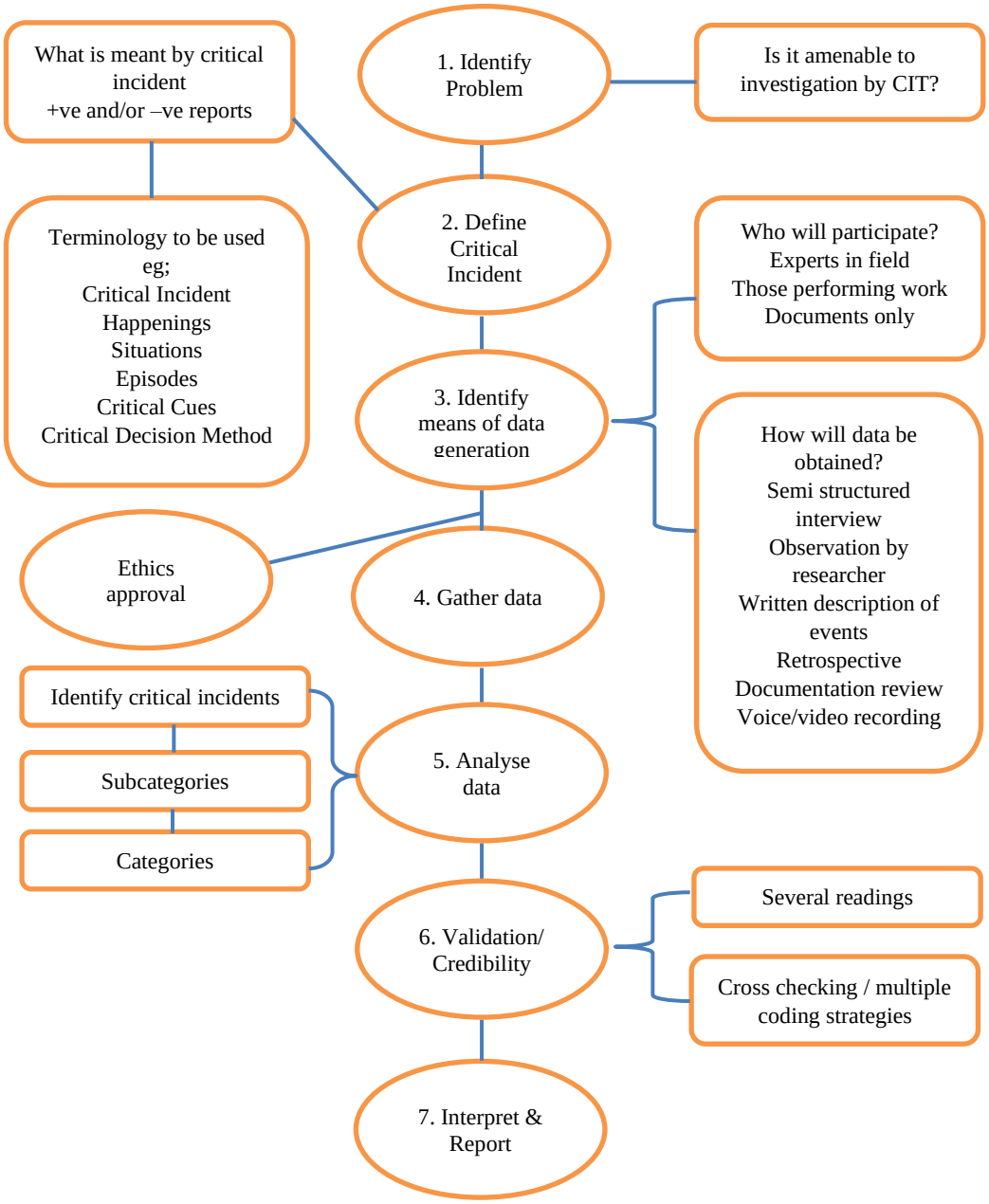


Figure 4.3 Seven stages for Critical Incident Technique
(adapted from: Mulholland *et al*., 2015)

4.5.2 'Critical Incident' terminology

CIT, as noted, is a complex research method and serves to allay the criticism by Glaser (2002) of the introduction of bias that may present from an interviewer with close ties to the subject matter at hand. The use of CIT in this study further strengthens the grounded theory process in use of specific terminology designed to provide a foundation of rich data for analysis. For this study, the definition of a 'Critical Incident' appears as descriptions of effective and less-effective episodes of collaboration revealed during semi structured interviews with paramedics, health professionals, and others who may be involved with paramedics in the provision of patient care.

From the outset, it was important to develop this definition, as previous research suggests some questions around what forms the basic unit for analysis in CIT. Norman *et al.* (1992), in their study of high- and low-quality nursing care, question whether it is an 'incident' that is 'critical', or whether observed activities or 'happenings' revealed by the incident are 'meaningful' to the question at hand (p. 594). Norman *et al*. (1992) also argue that the 'happenings' revealed by the incident are the basic unit of analysis in the CIT and not the 'incident' itself (p. 596). Norman *et al.* (1992) provide the example of an elderly patient, giving an 'incident' of nursing care as involving the patient getting out of bed in the morning. 'Happenings' within this incident included the nurse waking him early, getting him out of bed in a heavy-handed way, and discouraging him from lying on the bed (Norman *et al.,* 1992, pp. 595-596).

Other researchers also explore 'critical happenings', as opposed to 'critical incidents' (Redfern & Norman, 1999a; Redfern & Norman, 1999b; Schluter *et al*., 2008; Schluter, Seaton, & Chaboyer, 2011; Suddick & De Souza, 2007). Schluter *et al.* (2008) introduce yet another term, and make mention of a need to change 'critical incident' to 'significant event' as their study reports several nursing participants as stating no involvement in an 'incident' as such (Schluter *et al.,* 2008, p. 112). In their study, participants also assumed that the activities they undertook were not relevant due to the title (Critical Incident) of the technique (Schluter *et al*., 2008, p. 113).

Despite these variations to the terminology ‘critical incident’, there is opposition to the use of alternatives. Grant, Reamer and Hrycak (1993) in response to the article by Norman *at al*. (1992) argue that in their own research on care in long-term agencies it would not have been possible to obtain valid data by asking elderly people to bring forth meaningful ‘happenings’ beyond their level of insight (Grant *et al*., 1993, p. 2021). The real issue here is if the CIT could be a suitable method with certain groups of people. The research by Tolson, Smith and Knight (1999), in using an adapted CIT approach with elderly patients, found that few patients actively participated in critical incident interviews (Tolson *et al*., 1999, p. 1134).

It has been clear that different researchers adapt CIT to suit each circumstance. Closer to the topic of this present study, Svensson and Fridlund (2008), in their critical incident study into worries experienced by ambulance nurses in Sweden, use the terminology of ‘emergency situation’ (Svensson and Fridlund, 2008, p. 37) rather than ‘critical incident’ or even ‘happening’, as there may have been misunderstanding about what ‘critical’, or ‘happening’ actually means. It is therefore important that participants place an ‘incident’ within the context and understanding of their own experiences; for this reason, there was direction to participants in this present study to provide descriptions of effective and less-effective episodes of collaboration, rather than to describe ‘critical incidents’.

This present study asked participants to describe episodes where they had collaborated with other professionals in the process of patient care, and these episodes then became the units of analysis from which critical incidents emerged. The use of semi-structured interviews (see Section 4.6) supports the gleaning of information around critical incidents, rather than simply achieve a list of ‘incidents’. In line with a constructivist grounded theory approach, this information assists in the development of concepts and themes. Critical incidents, defined as episodes of collaboration, were determined to be ‘rich’ in nature using the following steps:

- the incident described where participants worked together;
- there was context around the incident;
- some reflection had taken place; and

- participants could identify that some learning had taken place.

These steps are important, to avoid an inference that all episodes of collaboration automatically mean that interprofessional learning occurs.

Appendix C presents an interview excerpt and illustrates critical incidents in the context of the interview process. Table 4.1 shows two summarised examples of critical incident.

Table 4.1 Examples of 'rich' critical incident determinants

Critical Incident name and description	Context	Reflection	Learning
Airway training Paramedic at new station requested by hospital staff to demonstrate basic airway management.	Hospital staff unaware of differences between hospital and paramedic management of care	Raised profile of ambulance. Less effective was the limited time to achieve training. No pre-warning. One nurse thought training was encouraging hospital staff to use ambulance protocols.	Hospital staff and GP learnt more about ambulance roles and guidelines. Need to be clear to avoid confusion around purpose of such training.
Chronic patient Ambulance care to chronic patient with blood pressure problems fed back to community nursing.	Hospital staff unaware of some paramedic treatment administered to certain patients in home environment	Ambulance care at home often fed back to hospital staff for follow up. Allows all staff the be aware of conditions. Similar feedback is often not forthcoming in larger areas.	Responsibility of paramedic staff to give feedback to enhance overall patient care.

The first of these examples relates to a request made by hospital staff to a paramedic to demonstrate basic airway management techniques utilised in ambulance care. The context surrounding this request is a desire by hospital staff to learn more of ambulance guidelines. In reflection, the paramedic who offered this

episode of collaboration observed a raising of the profile of paramedic care among hospital staff. A less effective element of the episode was the limited time available to the paramedic to be able to conduct such a session. Further, one nurse interpreted the session as promoting ambulance guidelines over hospital ones. The overall lesson from this episode was somewhat overt, with hospital staff learning more about ambulance guidelines; it also had less obvious outcome with a realisation that the purpose of such training needs to be clear to avoid confusion and fears around promoting one professional as more superior to another.

A complete list of critical incidents, in addition to the determinants of context, reflection and learning, is presented in Appendix D.

4.6 The research methods / data generation

Critical Incident Technique represents a specific method of inquiry which, in this study, combines with constructivist grounded theory in order that the voices of participants form the foundations for this investigation of interprofessional learning and paramedic practice. The following sections discuss in detail the methods used.

4.6.1 Ethics Approval

This study received ethics approval through The Tasmania Health and Medical Research Ethics Committee, approved 21 February 2013. Reference Number H00130350 (Appendix E). Figure 4.4 shows the process involved in obtaining ethics approval.

The National Statement on Ethical Conduct in Human research for the Australian research community, serves in overall governance of research in this country. The research code contained within this statement sets down broad principles of responsible and accountable research practice. While recognising that researchers and the institutions for which they work are primarily responsible for ethical practice, the code identifies the responsibilities of these institutions and researchers (National Health and Medical Research Council [NHMRC], 2007, p. 4).

As a starting point for any research, the National Statement contains several areas that define merit and integrity. In summary, these are:

- that research is justifiable by its potential benefit, including contribution to knowledge and understanding;
- is designed using methods appropriate for achieving the aims;
- is based on a thorough study of current and previous literature;
- is designed to ensure respect and safety (physical and emotional) for participants;
- is conducted by persons or teams with experience and competence; and
- conducted using facilities and resources appropriate for research (NHMRC, 2007, p. 10).

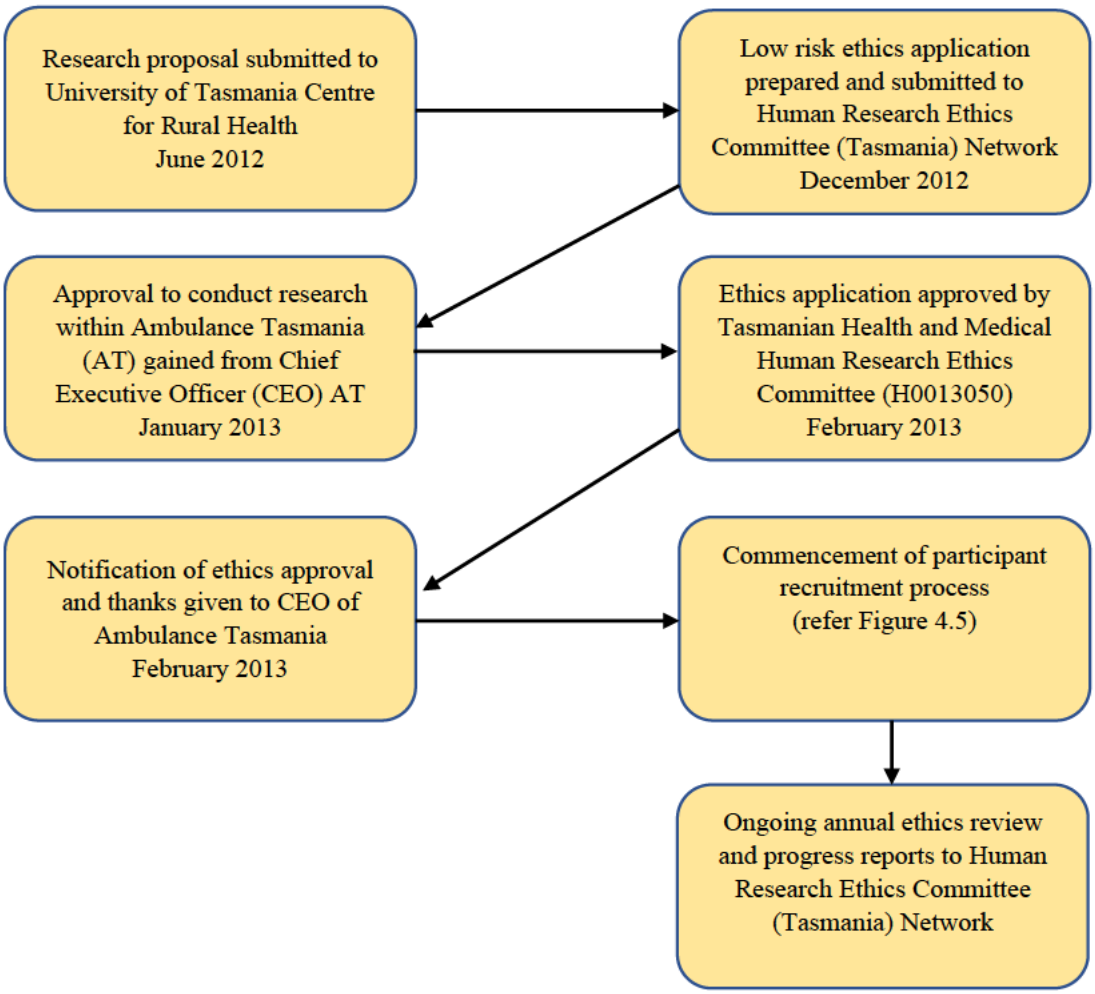


Figure 4.4 Process of ethics approval

One of the primary concerns for this current study is that it has both merit and integrity, and attention to each of these areas appears prior to and during the

conduct of research. The study is based on a study of literature, with gaps noted and outlined in project aims. Explanation and validation of methods used occurs both through examination of the relevance of grounded theory and the relevance of Critical Incident Technique as a main method. Each participant in the study is voluntary, with clear knowledge of requirements and the purpose of the research, and the researcher is a paramedic with 30+ years' experience, in both research and paramedic practice.

4.6.2 Research locations

This study has been set in rural Australia in the state of Tasmania. Inclusion as a site in this study involved determinants of rural ratings on the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA) classification scale. The ASGC-RA classification system is as follows:

- RA1 – Major cities of Australia
- RA2 – Inner Regional Australia
- RA3 – Outer Regional Australia
- RA4 – Remote Australia
- RA5 – Very Remote Australia

The purpose of the ASGC-RA is to classify data from census collection into broad geographical categories. Calculation of remoteness is by the road distance to nearest Urban Centre (access to goods and services) in each of the five classes based on population size. An advantage of the ASGCA-RA is that it has a different weighting for Tasmania as a less densely populated island state, in comparison with mainland Australia (Australian Government Department of Health and Ageing, 2009).

The selection of rural sites for this study largely represents a purposeful sampling technique to select typical cases representative of different rural areas. In typical purposeful case sampling, there is requirement for insider knowledge to enable identification of such cases (Hansen, 2006, p. 53), hence the relevance and value of a researcher of this project with considerable ambulance experience. The

initial sites selected in this study are representative of models of paramedic practice occurring across different rural locations.

Sites selected were from areas with outer regional classification (RA3), remote (RA4) and very remote (RA5). Tasmania offers a unique perspective on IPL, in that different models of types of paramedic care exist within these sites. The sites and models are:

- RA3 – where health professions other than paramedics, for example nurses, were trained by paramedics to deliver paramedic care (Hospital based);
- RA3 – where ambulance volunteers responded independent of salaried paramedics (Volunteer only);
- RA3 – where salaried paramedics worked alongside volunteers co located at individual ambulance stations (Co-located);
- RA4 – where salaried paramedics worked alongside volunteers but not necessarily from a co-location with volunteers (Non co-located); and
- RA5 – where volunteers responded independently of salaried paramedics (Volunteer only).

One additional model of practice for inclusion in this study is that of Extended Care Paramedics (ECPs). The main aim of these paramedics is to provide home based care and avoid hospital transport where appropriate. ECPs are based in an area classified as inner regional (RA2); however, their response area includes surrounding outer regional (RA3) locations. Appendix F provides detailed descriptions of the sites involved.

4.6.3 Recruitment of Participants

The initial recruitment strategy for participants is in line with the purposeful sampling of case sites, with participants selected from these sites. This established a wide baseline from which data generation would commence.

A general information poster was distributed to ambulance stations and hospitals/medical centres within the selected sites. Permission to place a general

information poster on staff notice boards was received *via* letters to Ambulance Tasmania CEO, and Directors of Nursing at other sites.

Those interested in the project contacted the researcher by phone or e-mail. Potential participants then received a package containing an information statement (Appendix G) and an invitation to participate. Those who agreed to participate received a consent form, and collaboration reporting form (Appendix H). Participants kept copies of the information sheet and consent form for their own records.

Eighteen participants resulted from the initial recruitment stage. Following analysis of data from the initial eighteen participants, main categories began to form. From here, the idea of theoretical sampling was engaged. The purpose of theoretical sampling, as defined by Charmaz (2006) is:

> *…to elaborate and refine categories constituting theory. Theoretical sampling is sampling to develop the properties of categories until no new properties emerge* (Charmaz, 2006, p. 96).

Theoretical sampling is an important tenet of constructivist grounded theory and should not be confused with other sampling strategies. It is more than sampling to determine initial research questions, or sampling until no new data emerge. These are examples of initial sampling. Theoretical sampling provides elaboration and refinement of concepts and categories as they emerge through analysis of data. Whereas initial sampling is where to start, theoretical sampling directs where you go (Charmaz, 2006, p.100).

To reinforce emerging concepts was a further recruitment strategy, whereby participants or organisations suggested additional new potential participants. This resulted in the mailing of information sheets, invitation to participate, consent forms and collaboration reporting forms to the nominated potential new participants. The extended care paramedic model of practice is one example of this process; while the ECPs were not part of the initial recruitment process, there was some recognition they may be able to contribute further information regarding developing theoretical concepts. Figure 4.5 illustrates the recruitment process.

One doctor initially responded to the primary recruitment drive, however, was later unavailable, due to other circumstances. No other doctors responded to either the primary or secondary recruitment efforts. Again, in line with emerging concepts, and the frequent note of working with doctors, the decision to actively pursue at least one doctor as a participant was made. The researcher directly informed the doctor participant of the study and he voluntarily agreed to participate.

Other non-health related emergency service personnel (for example, fire and police) were not actively sought as participants; however, in line with theoretical sampling being a concept whereby the researcher does not specify numbers or attributes of participants, and allows the data to guide the project (Charmaz, 2006, p. 100; Glaser, 1978, p. 37), one State Emergency Service / Fire Service volunteer stated a desire to participate and was included. One other ambulance volunteer participant, who was also a fire volunteer, contributed information from an alternative emergency care perspective.

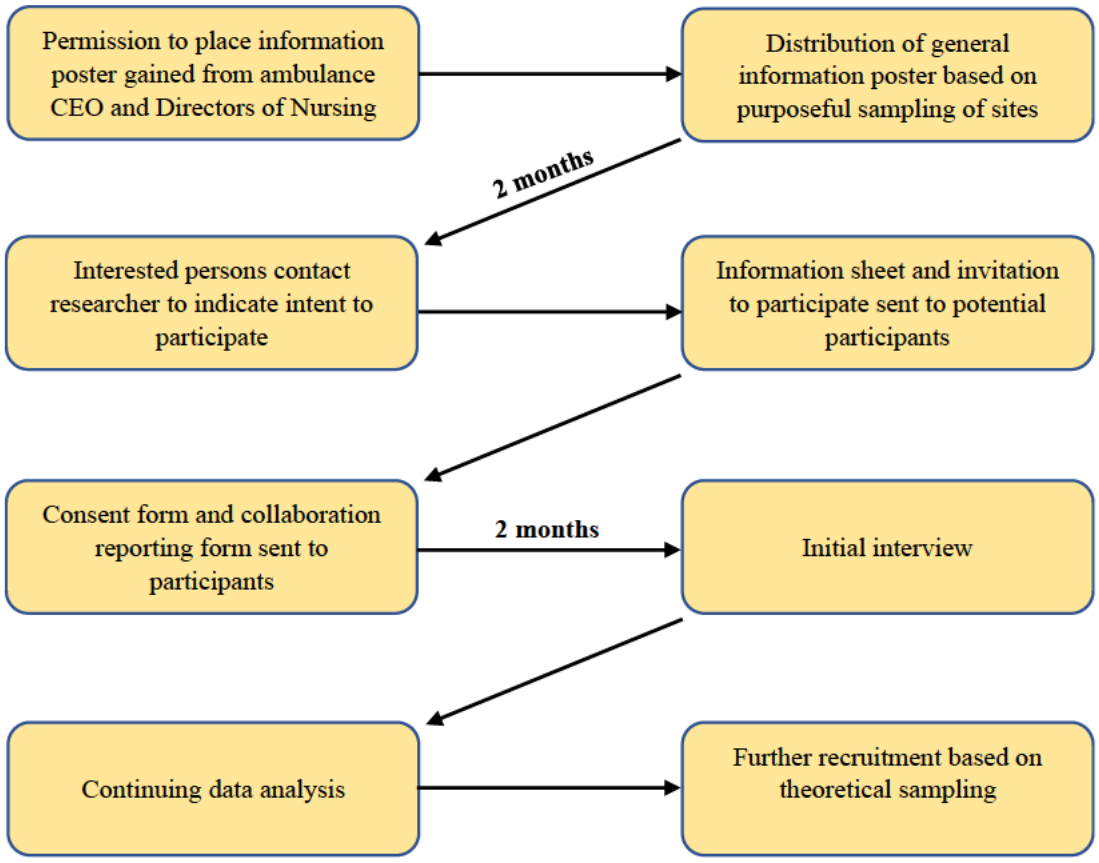


Figure 4.5 Participant recruitment process

4.6.4 Participants

Participants were paramedics or those who could offer experience of collaboration with paramedics:

- ambulance paramedics (n=2),
- intensive care paramedics (n=5),
- extended care paramedics (n=2),
- ambulance volunteers (n=6),
- nurses (n=9),
- medical practitioners (n=1), and
- other emergency service workers (n=1).

Full time, part time, and volunteer staff were included. The total number of participants was twenty-six.

Participants were both male (n=13) and female (n=13). All were voluntary. The gender distribution of participants is equal but due to the voluntary nature of participation, the study is not dependent on an equal gender distribution. All participants are over the age of eighteen, and fully qualified in their field of work. Excluded from the study were those under the age of 18, those who had no experience of collaboration with paramedics, and those who were undertaking internships at the time of interview. Table 4.2 lists the participants by site classification, occupation and gender; also included are the designators used in this study for each participant.

Table 4.2 Participants

Classification	Model of paramedic practice	Qualification and designator	Gender
RA2	ECP	Extended Care Paramedic (H1)	M
	ECP	Extended Care Paramedic (H2)	M
	ECP	Nurse (H3)	F
RA3	Volunteer only	Ambulance Volunteer (G1)	F
	Volunteer only	Ambulance Volunteer / nurse (G2)	F
	Volunteer only	Ambulance Volunteer / Other (G3)	M
	Hospital based	Ambulance Volunteer (C4)	M
	Volunteer only	Nurse (G4)	F
	Hospital based	Nurse (C1)	F
	Hospital based	Nurse / Ambulance Volunteer (C2)	F
	Hospital based	Nurse / Ambulance Volunteer (C3)	F
	Co-located	Nurse (D2)	F
	Co-located	Paramedic (D1)	M
	Co-located	Intensive Care Paramedic (D4)	M
	Co-located	Intensive Care Paramedic (E1)	M
	Co-located	Doctor (D3)	M
	Volunteer only	Other (G5)	M
RA4	Non co-located	Paramedic (B2)	M
	Non co-located	Intensive Care Paramedic (B1)	M
	Non co-located	Intensive Care Paramedic / Nurse (F1)	F
	Non co-located	Intensive Care Paramedic (F2)	M
	Non co-located	Nurse (F3)	F
	Non co-located	Nurse (B3)	F
RA5	Volunteer only	Ambulance Volunteer (A1)	F
	Volunteer only	Ambulance Volunteer (A2)	M
	Volunteer only	Nurse (A3)	F

Notes:

- Some participants have dual current qualifications. Their main occupation is listed first.
- RA3 – where health professions other than paramedic, for example. nurses, are trained by paramedics to deliver paramedic care (Hospital based).
- RA3 – where volunteers respond independent of salaried paramedics (Volunteer only)
- RA3 – where salaried paramedics work alongside volunteers co located at individual ambulance stations (Co-located).
- RA4 – where salaried paramedics work alongside volunteers but not necessarily from a co-location with volunteers (Non co-located).
- RA5 – where volunteers respond independent of salaried paramedics (Volunteer only).
- Designators appear as site/participant number.

4.6.5 Main data source – Semi-structured interviews

In order to obtain descriptions of effective and less-effective episodes of collaboration, paramedics, health professionals, and others who may have been involved with paramedics in the provision of patient care participated in semi structured interviews.

Semi structured interviews are closely associated with inductive methodologies such as grounded theory and are those in which the interviewer uses a list of questions or an interview guide. The questions are open-ended. The interviewer is free to ask additional questions during the interview and respond to questions raised by the participants (Hansen, 2006, p. 99). The idea is to explore rather than interrogate, allowing participant stories to emerge and develop (Charmaz, 2006, p. 29).

Guiding the semi structured interviews conducted in this project was Critical Incident technique. The interview schedule is Appendix I. Four main interview questions are:

- Can you describe situations whereby you have undertaken collaboration with another health professional? (For non-paramedics this question asked about collaboration with a paramedic).
- What were effective aspects about these situations?
- What aspects about these situations were less effective?
- Are there any more details you would like to offer concerning situations of collaboration?

Interviews ranged from ten minutes to 56 minutes, with an average of 35 minutes. In interview, participants described situations whereby they had undertaken collaboration with another health professional. Interviews took place at a time and place suitable to participants; for example, in the participant's local area, or the researcher's private office. Electronic recording of interviews took place with participant permission. All participants had the interview process explained and consented to participate. Consent forms received by each participant prior to interview were signed in the presence of the interviewer. Consent for phone

interviews was by verbal consent with the form signed by the interviewer, and later sent to each participant, for his or her records. Should participants have indicated they were uncomfortable with the main researcher being a paramedic, study supervisors agreed to assist with the interview process. Participants were offered external assistance should they experience distress from the subject matter discussed.

No participants indicated they were distressed in any way by the subject matter they were discussing and none requested interviews to be conducted by study supervisors. The need to attend an ambulance case cut short one interview; the paramedic participant had completed a collaboration reporting form, and when offered the opportunity to contribute further, stated he was happy with the information given.

Most interviews were face-to-face. Four interviews were by phone at a time pre-determined by the participants. One advantage of face-to-face interviews is the opportunity to observe and respond to social cues, such as voice, intonation, or body language. The interviewer can build a direct rapport and establish a favourable environment in which the participant will feel comfortable. One note of caution, however, is that the interviewer can guide the interviewee toward a certain direction. This of course can be a disadvantage in that the interviewer can use such an interaction to create wanted responses. The use of an interview protocol, in this study, which asks the participants to describe specific incidents of collaboration, is one way by which to reduce this effect and thereby reduce any possible bias (Opdenakker, 2006). Despite the possibility of introducing personal bias, the face-to-face interview allows continual shaping and guidance during the interview, and also allows the interviewer to draw further on the presented information (Irvine, Drew, & Sainsbury, 2012, p. 91).

Telephone interviews allow the ability to gain access to participants in remote areas more easily or can allow a degree of freedom for participants to contribute information at a time and place suited to their own needs. In the telephone interviews of this study each of these aspects was relevant. Social cues such as body language could not be seen, but voice and intonation were clear. There has been some conjecture that, during a telephone interview, there is less ability for the interviewer and interviewee to react to what the other says and this demands that the

interviewer afford more concentration to the questions asked and answers given (Opdenakker, 2006). Conversely, it is argued that people across many cultures are well-used to communication by telephone formally and informally, with some researchers claiming telephone interviews as successful and that they can achieve similarly friendly rapport (Irvine *et al.*, 2012, p. 90).

There is also some belief that telephone interviews offer a degree of anonymity and that, despite a lack of visual cues, participants may be more responsive in this situation (Sturges & Hanrahan, 2004, p. 108).

As a number of the participants were from the same rural locations, some comparison of phone interviews in relation to face-to-face interviews was possible. When from the same areas, both phone and direct interview participants noted some of the same incidents. This occurred without participants having knowledge of others in the study. Such a finding is equally important in confirmation of CIT, as respondents were describing both positive and negative critical incidents they had deemed to be important (Flanagan, 1954, p. 338; Norman *et al*., 1992, p. 596; Schluter *et al*., 2008, p. 108; Svensson & Fridlund, 2008, p. 36).

One feature of this study is that the main researcher, who also conducted all interviews, was an intensive care paramedic with 30 + years' experience across two states of Australia, including both urban and rural regions. Prior to being a paramedic, this researcher was a registered nurse with six years' experience in that field. This bought to the interview process an understanding and insight as to what participants were contributing; in both face-to face and telephone interviews, the interviewer would encourage further and relevant elaboration, when required.

The point at which it was determined no further interviews would be of benefit is discussed in Section 5.2.2

4.6.6 Other data sources

In consideration of an overarching grounded theory approach, other sources of data complement the Critical Incident Technique. These data include collaboration reporting forms, memos and field notes.

In order that participants could recall recent situations of collaboration, they received a collaboration reporting form (Appendix H). The collaboration reporting form contains a definition of collaboration and instructions on how to complete the form. The form requests that participants record situations of collaboration and allowed a minimum two-month period between receiving the form and their interview. Distribution of the forms included contact details should a need for further clarification arise. The researcher collected collaboration reporting forms at the time of interview.

Conformity with completing collaboration reporting forms was minimal, with only four forms completed and returned. Two participants did record their own notes prior to interview; however, these were used to assist the interview process. The reason for collaboration reporting forms is that one essential element of Critical Incident technique is reliance on memory, and this is usually most satisfactory when the incidents are recent, with observers motivated enough to make detailed observations at the time of the incident. However, Flanagan (1954) concedes that accuracy in reporting of the critical incident also comes from how full and precise the description of the event is (340). There is some thought that negative incidents may appear and mobilise behavioural, affective, and cognitive reactions to a greater degree than positive (Edvardsson & Roos, 2001, p. 258); yet, vivid memory of relevant accounts are noted despite the passage of time between an incident and its recall (Schluter *et al.*, 2011, p. 1220).

For these reasons, collaboration reporting forms remained a useful form of data generation, along with other forms of data such as memo writing and field notes. The relevance of memos is an important part of grounded theory (Corbin & Strauss, 1990, p. 10; Lempert, 2007, p. 245). Charmaz (2014) states that successive memo writing throughout the research process is a way of keeping involvement in the analysis, and helps to progress from the reality of codes to the more abstract theoretical constructs (Charmaz, 2014, p. 162). In other words, they help to conceptualise the data in narrative form (Corbin & Strauss, 2008, pp. 118-119; Lempert, 2007, p. 244).

Memos used in this study came from several sources and these included the participant interviews process, focused coding, and external sources such as

comments by other (non-participant) ambulance or health practitioners. Importantly, many participants, in addition to contributing critical incidents, also presented general thoughts around collaboration, with these data included for analysis as memos.

During the process of participant interviews, the keeping of field notes involved information around any outstanding features of the interview. Such features, then recorded as memos and notations to interviews, include the approach of the participant (such as if a comment appeared in jest, or a participant seemed particularly upset or vocal about an issue they were expressing).

Part of a focused coding process is the formulation of codes around these memos and serves the purpose of helping explain the advance from coded data to concepts. Charmaz (2006) notes the narratives raised in memos assist to:

- define categories;
- explicate properties of categories;
- specify the conditions under which categories arose, maintained, and changed;
- describe consequences; and
- show relation to other concepts (Charmaz, 2006, p. 92).

During this research, the recording of information external to participant interviews was also part of the memo and field note process. Relevant information serves to increase the credibility of interview data; for example, when nursing staff, not aware of participants in the research, commented on an incident raised by participants, thereby confirming statements made during interview. An illustration of a memo appears in Appendix J.

4.6.7 Data recording and transcription

Electronic recording of all interviews occurred with prior permission of participants, including those interviews conducted by phone. Transcription of recorded interviews was word-for-word, and entirely done by the primary researcher, who was also the sole interviewer. This allowed for full immersion in the data by the primary

researcher and the ability to observe the emergence of potential themes as they began to appear from data. Transcription of approximately 13 hours of interview material amounted to over 98,000 words.

An invitation to review and check transcripts of individual interviews was offered to each participant. Often referred to as member checking or respondent validation, research participants review transcripts in order to confirm their accuracy. This process is a technique often used among qualitative researchers to ensure rigour and to validate findings (Lincoln & Guba, 1985, p. 300). The principal aim of this method is to establish the degree of agreement between the researcher's views and those of the participants (Hansen, 2006, p. 56). Only three participants took up the offer to review transcripts and one participant requested minor changes due to identifying factors around one cited incident.

To help preserve the language and intention of participants any nuances of conversation appeared in transcripts. Table 4.3 lists the conventions of conversation as they appear in the transcript quotations noted in following chapters.

Table 4.3 Conventions used in interview transcripts

Transcript convention	**Explanation**
...	Break or hesitation in conversation
Umm	Participant's wording prior to answer
[laughs]	Indicates laughter from participant
[frown/s, eye rolling, smile/s etc]	Indicate facial expressions
[sigh/es]	Indicates sigh of frustration
[raises voice]	In response to making important point
[general conversation]	Where participant and researcher engage in other conversation during interview
[sic]	Used after odd or erroneous words to indicate exact transcript
[text]	Indicates implied words or meaning

Pauses or silences use multiple dots, or where the participants had prefaced conversation with an 'umm'. Notation of laughter was in brackets, as were elements such as sighing or eye rolling. Transcription of expletives were *verbatim*. A note appeared where any interruptions to interviews occurred. In some cases, participants

strayed from giving episodes of collaboration and instead talked about general paramedic care. Transcribing this information helped provide a more rounded picture of general paramedic care. All transcripts included the place of interview, such as private office, by phone, or café, for example, and all included a brief description of the participant's role in paramedic care.

4.7 Chapter summary

This chapter outlines the research design, strategies and methods adopted in this study. The aim of this research is to address gaps in reported literature and investigate interprofessional learning involving rural paramedic practice in terms of interaction, learning outcomes and patient benefit, in order to enhance knowledge of interprofessional learning. In seeking to inform a subject matter by which little information is currently present, a strategy of this study is to avoid imposing one theoretical construct from the outset. Hence, a method of inquiry is utilised that allows the undertaking of research with an open mind. To this end, qualitative constructivist grounded theory approach is employed.

Grounded theorists look at key words, statements, and actions in a continuing process, but it is more than an analytical tool. Common elements of grounded theory include a requirement for conceptualisation and theory development, the derivation of theory from social reality, identification of similarities and differences in data, and a that the researcher approaches with an open mind, putting aside pre-formed ideas, all of which allow emergent data to form theory.

The main technique for gathering data in this study involves a specific interview method. Critical Incident Technique (CIT) is a research method suited to the direct observation and examination of significant behaviours to suggest means by which to improve practice. A critical incident is any observable human activity that allows for inferences and prediction about the person performing the act. Other forms of data gathering include memos and field notes. These methods, incorporated as part of constructivist grounded theory, along with CIT, form a multi-methods approach designed to build a rounded picture of paramedic care and IPL.

Chapter 5 builds upon the research design and methods presented in this chapter and provides a comprehensive explanation and description of the analytical processes adopted in this study of interprofessional learning and paramedic practice.

Chapter 5: Data analysis

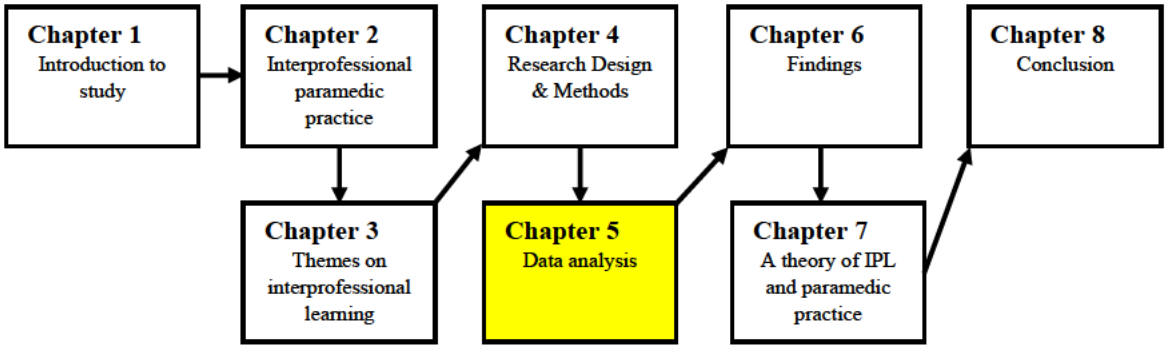


Figure 5.1 Thesis map, Chapter 5

5.1 Introduction

This chapter details the process of analysis using grounded theory. The main premise of a constructivist grounded theory approach to investigate interprofessional learning and paramedic practice is to include and represent the voices of participants, using their stories around collaboration to reveal concepts that explain and make sense out of their lived experiences.

In line with constructivist grounded theory, and in addition to interview data, other information used in this study include memos and field notes made by the primary researcher. The process of analysis is constant comparison of Critical Incident Technique data with each other and with other information given during interviews, and theoretical sampling, where emerging concepts drive further investigation.

Section 5.2 outlines the coding process and data analysis, presenting results from initial and focused cycles of coding. Initial coding being an open-ended iterative approach to reflect meaning and action. Focused coding providing a means by which to refine initial codes and present broad concepts. Section 5.3 is an explanation of the conceptual process undertaken in moving from codes to the development of theory.

5.2 The analytical process

This study draws on data analysis processes prescribed by constructivist grounded theory, and largely adopts work by Charmaz (2006). At its foundation, data analysis in grounded theory involves coding through different stages. Charmaz (2014) defines a code as being a short label, assigned by the researcher, which depicts what is happening in a piece of data. The process of coding then involves the defining and labeling of what data are about (Charmaz, 2014, pp. 341-342). The completion of coding incorporates more than one step, subjecting data to a cyclical process of data investigation, coding, categorisation, re-coding and re-categorisation (Saldana, 2009, p. 45). Different methods of coding appear in grounded theory; Constructivist grounded theory simplifies these to initial/open coding and refocused coding (Kenny & Fourie, 2015, p. 1279). The process of data analysis in this study utilises the terms 'initial' and 'focused coding'. Coding initially follows a process of data reading and re-reading.

Following manual application of codes, verification takes place with coding by both the investigator and research supervisors. This incorporates comparison of codes and identification of common areas. Entering data to NVivo 11 enhances coordination of data and provides a focal point from which to develop main areas and concepts to address the research questions (see Section 4.1). Due to the large number of codes, examples of the complete coding process from transcript, to identification of critical incidents, initial and then focused cycle codes appear in Appendix C.

5.2.1 Determining critical incidents

The first step in the analytical process is the identification of critical incidents. This incorporates more than identifying a list of collaborative episodes with paramedics, and in the interests of encouraging the transferability of this qualitative approach, looks for rich descriptions in data (Lincoln & Guba, 1985). Identification of critical incidents, determined as 'rich' in nature, follows these steps:

- the incident described where participants worked together;
- there was context around the incident;

- some reflection had taken place; and
- participants could identify that some learning had taken place.

These steps are based on aspects of CIT that are determined to be areas of significance in previous research. These areas include that the 'incident' be an observable activity (describes working together), allows for inferences and prediction (context), positive or less positive elements can be identified (reflection) and a significant contribution can be identified (learning has taken place) (Flanagan, 1954, p. 338; Norman *et al*., 1992, p. 595; Schluter *et al*., 2008, p. 108).

CIT revealed an initial 102 critical incidents. These underwent cross-verification by the researcher and research supervisors. During this process, a wide variation in content appeared between some of these episodes of collaboration, and some contain greater detail than others. Comparing critical incidents with criteria established for a 'rich' critical incident, 27 critical incidents were determined to not meet the criteria. Appendix D lists the 75 'rich' critical incidents. Of these 75 incidents, four are concerned with training exercises between different professionals; the remaining 71 incorporate episodes of patient care.

In a breakdown of 'rich' critical incidents, Figure 5.2 gives the number of incidents compared to each rural classification and individual site. The classifications of sites in this study are RA2 (Inner regional Australia), RA3 (Outer regional Australia), RA4 (Remote Australia) and RA5 (Very remote Australia) (see Section 4.6.2).

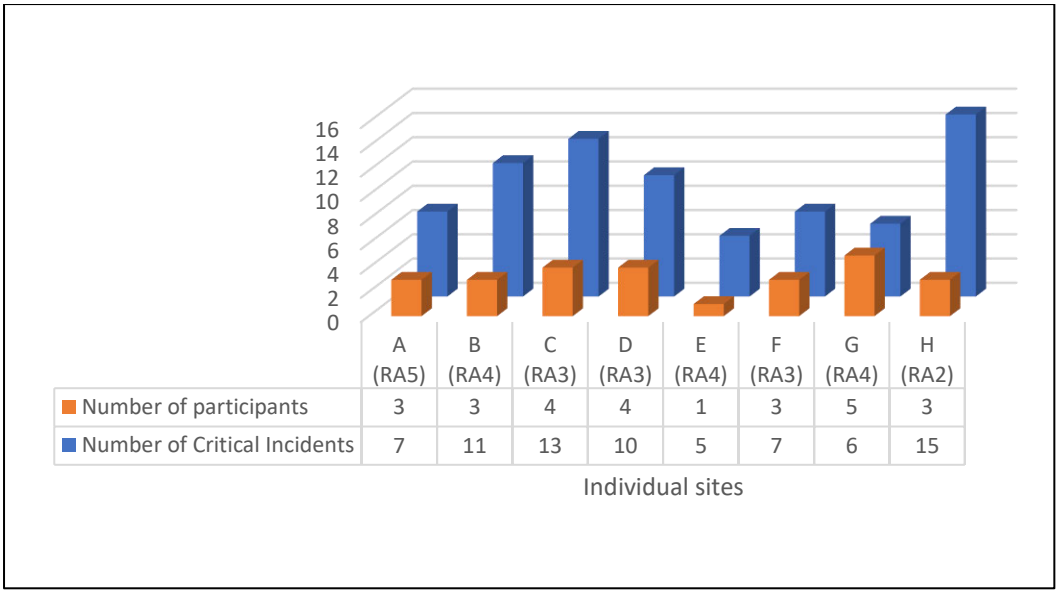


Figure 5.2 Number of critical incidents to number of participants by site

Even following identification of rich critical incidents, descriptions of collaboration vary somewhat in the volume of content expressed. Some are over 800 words; others are just over 100. Nevertheless, being a 'rich' critical incident did not necessarily imply a large amount of text. The following example is a case in point:

> *One [case] that we just had on Friday night … there was somebody who had been in an MVA* [Motor Vehicle Accident], *quite a significant MVA, but several hours before hand so it wasn't an issue.*
>
> *So, we thought about it, talked about it amongst ourselves and decided to put the* [cervical] *collar on because she was complaining of neck pain. They* [responding paramedics] *go* [sigh] *'just what is she doing with a collar on', 'because we are VAOS – and that is our scope of practice!' You want to take it off that is fine by me!*
>
> *Instead of questioning why we did something just remember we are in a different role from them, you know that is what we are supposed to do* (C2, nurse/volunteer).

Despite being only 122 words in length, this transcript describes an observable incident where paramedics and nurses/volunteers worked together at the scene of a motor accident. There was context in that the nurse/volunteer involved assumed her treatment was correct and in-line with her patient care guidelines. A positive element

was an implied benefit to patient condition, through the relief of pain. One less effective element was an unexpected response from a paramedic, who questions the initial treatment. The lesson of this episode of care is the paramedic response, with the participant recognising that different guidelines do exist, whilst at the same time acknowledging a more appropriate way of offering feedback (when differences arise) is to adopt an explanatory point of view, rather than a critical one).

Rather than a simple transcript of words, strengthening the relay of this incident are descriptions of participant reaction, including expressions using exclamation marks, as well as highlighting the nature of the paramedic retort, noting a sigh when responding to the participant. A memo attached to the interview from where this incident arose, further notes the participant generally seemed aggrieved by some of the 'superior' attitudes taken by paramedics when working with ambulance volunteers or nursing staff.

One notable aspect of the critical incidents expressed by participants is the nature of the incidents. An important consideration in CIT is the terminology used when asking participants to describe incidents. This study asked participants to describe episodes of care where they had collaborated with other professionals in the process of patient care, and these episodes then became the units of analysis. Deliberate avoidance of the term 'critical incident' enabled an examination all forms of care and not only those considered 'critical', a term that may have connotations in the field of paramedic practice. This is consistent with studies, such as that by Svensson and Fridlund (2008, p. 37), who, in their critical incident research into worries experienced by ambulance nurses in Sweden use the terminology of 'emergency situation', rather than 'critical incident' in order to be specific about what type of care they were attempting to examine.

Even so, in this present study, most participants, in describing episodes of collaboration, chose to discuss incidents of a more 'critical' emergency-based focus (n=61) rather than those of a less 'critical' nature (n=14). This includes attendance at two mental health care patients suffering acute psychiatric episodes. Non 'critical' episodes of collaboration include ten cases of attendance to chronic care patients, and four episodes of joint training sessions. The ECP cohort offered most cases of chronic care, and this was not surprising, given the key role of ECPs being to

manage a patient in their own home, if possible. Table 5.1 shows the critical incidents not based on acute patient care episodes.

Table 5.1 Critical Incidents not based on acute patient care episodes

Non-acute critical incident	Description
Chronic patient	Attendance to patient with blood pressure problems. Managed at home with paramedic referring ongoing care to community nursing.
ECP nursing home liaison	ECP consulted with liaison team and doctor to help manage care of patient in nursing home.
ECP referral to aged care liaison team	Referral of patient to aged care team for further management.
ECP working with aged care liaison team	New ECPs working with aged care liaison to gain information about the services offered.
Non-English speaking migrant 1	Coordinated use of migrant resources, including translator and relatives, to enable diagnosis of condition.
Non-English speaking migrant 2	Coordinated use of migrant resources, including translator and relatives, to enable diagnosis of condition.
Palliative care pathology	Consult with doctors to help manage nausea in palliative care patient.
Patient in retirement home	Assisting patient in retirement village. Open communication between ECP and nursing staff to enable care.
Social situation	Paramedic liaised with medical staff to enable care of patient at local level.
Urinary catheter in quadriplegic patient	Paramedic and community nurse worked together to replace urinary catheter.
Airway training	Paramedic requested by hospital staff to conduct basic airway training.
Clinical placements	Clinical placements of new ECPs in order to learn new skills and widen awareness of other resources.
Exercise with state emergency service	Joint exercise between several emergency services.
Volunteer training session	Training session for new recruits to ambulance volunteer services, some of whom had previous medical experience.

5.2.2 'Saturation' point and theoretical sampling

The saturation point, at which it was determined critical incidents provided enough information, incorporated both CIT (Bradbury-Jones and Tranter, 2008; Butterfield, Borgen, Amundson and Maglio, 2005; Flanagan, 1954; Norman *et al*., 1992; Schluter *et al*., 2008) and grounded theory (Charmaz, 2006) traditions. With CIT, there is no definitive answer to the number of critical incidents required. Flanagan (1954) suggests that for a simple activity, 50 to 100 critical incidents would be satisfactory; but then also to notes that jobs of a supervisory nature may require two to 4000 critical incidents to establish a comprehensive statement of critical behaviours (Flanagan, 1954, p. 343).

Bradbury-Jones and Tranter (2008), in their critique of CIT in nursing research, notes that research using CIT should make use of the numbers of critical incidents, rather than numbers of participants. These researchers observe that sample size (number of participants) may vary greatly, from ten to over 1000, but this does not reflect the amount of data (critical incidents) generated (p. 401). The numbers of critical incidents may vary depending on the complexity of the research question; others say sampling will continue until saturation of data (Norman *et al*., 1992, p. 594; Schluter *et al*., 2008, p. 110).

Following a review of CIT from inception to 2004, Butterfield *et al*. (2005) offer different alternatives to saturation, including verification of what participants reveal by cross checking with a second interview supplementary to CIT, and tracking a point at which new concepts stop emerging from data (Butterfield *et al*., 2005, pp. 486-487).

It is with this understanding of the allowable variation of the required numbers of critical incident, that grounded theory is the overarching control for saturation of data. Rather than thinking of saturation in terms of numbers of critical incidents and making the mistake noted by Charmaz (2014, p. 100) of simply sampling until no new data emerge, sampling is based on overall theoretical development. In other words, theoretical sampling until 'saturation' of categories. Charmaz (2006) supports theoretical saturation in terms of categories; that is, categories are saturated when gathering fresh data no longer sparks new theoretical

insights, nor reveals new properties of these core theoretical categories (Charmaz, 2006, p. 113).

In this study, as Charmaz (2006) proposes, saturation is dependent on the completeness of theoretical concepts. New directions to investigation take place dependent on emerging ideas. An example of this is in the recruitment of extended care paramedics to the study. This model of practice was not part of the initial planning stage due to extended care paramedics (ECPs) working in both urban and rural areas; however, with rapidly emerging theoretical concepts such as interprofessional relationships, there was the realisation that the professional ties ECPs had with other health practitioners can help to provide further evidence in such areas.

So too, it would have been easy to disregard some critical incidents with little content; however, on meeting the criteria for a 'rich' critical incident the theoretical contribution of such incidents could be significant regardless of the number of lines of text presented. Figure 5.3 is an example of a surgeon who could not participate as an ambulance volunteer, without completing an entire volunteer training course.

And well, we have even had ***a doctor who wanted to do one weekend in six*** *and you know, after consultation* ***we have had to say, no*** *… because he would come on the ambulance … there* ***is no RPL with ambulance*** *Tasmania, so he would have to go and do the three* [introductory] *weekends and then he would* ***have to work under the ambulance VAO protocols****. Well that is an* ***insult to someone who is a surgeon!***

You have to say to him, well if you want to talk to ambulance Tasmania and ***get a pager and help us out*** *when you are on the island as doctor that is great,* ***but you can't*** *… you know, you are* ***demeaning yourself*** *to do the other. And once again there is this philosophy, going back to … the days in the pub, where the least drunk person drove the ambulance,* ***there is a philosophy now, well you are only just drivers!***

They will say, oh ***you are an ambulance driver? And we will say no we are ambulance officers!***

Note: In Vivo coding shown in bold text

Figure 5.3 Critical Incident – Red tape and willing doctor

Although only brief, this episode is important in helping reinforce an emerging theoretical concept of operational barriers, consisting of constraints and power relationships that may exist in an interprofessional environment.

5.2.3 First Cycle (Initial) Coding

Initial coding is an accepted first major stage of a constructivist grounded theory approach, and offers an open-ended and iterative approach (Charmaz, 2006, p. 116; Saldana, 2009, p. 81). Charmaz (2014) suggested that during initial coding the researcher asks; what the data studies, what do the data suggest, from whose point of view are data presented, and what theoretical category may present. Rather than adopt a language of topics and themes, initial coding should be in the form of words that reflect meaning and action (p. 116). Initial coding can employ more than one way to help define what is happening in data. In this study, initial coding incorporated both process and In Vivo coding across each critical incident.

Reflecting action is a purpose of process coding. Here, data code specifically to denote action (Saldana, 2009, p. 77-81). In an example from this present study (Table 5.2), an ambulance volunteer described the initial response from a paramedic after arrival as part of a backup crew.

Table 5.2 Example of process coding

Interview text	Process coding
"A negative episode was that one down the bottom of [location], *the paramedic jumped out of the bus, the last one on scene, you know,* [she demanded] *'put your safety vests on or you will be fired!!"*	Condescending Threatening Demanding Insisting

Specific questions that help to see actions and processes within data include those advocated by Charmaz (2008):

- What process was at issue and how can it be defined?
- Under what conditions did the process develop?
- How did the participant feel, think and act while involved in the process?
- Why, when and how did the process change?

- What were the consequences of this process? (Charmaz, 2008, p. 96).

Applying these questions to the example from Table 5.2 and the first process code of ‘condescending’, this code defines as such due to the attitude taken toward the ambulance volunteer by the paramedic backup person described. The conditions under which the process developed included a stressful environment of patient care during a motor vehicle accident. The volunteers at the scene had been busy and had forgotten to wear reflective vests. They were criticised for this by a paramedic who arrived at the scene later during the event. The participant felt somewhat threatened by this condescending process which then led to the emergence of another process code of ‘threatening’. The process remained unchanged during the episode of care. Consequences of the process led to the volunteer later stating during the interview he would always remember that paramedic and that a certain cautionary awareness of paramedics had developed as a result.

From the example given in Table 5.2 several process codes arise from one section of text. The questions advocated by Charmaz (2008), when applied to all interview data helped establish process codes. Importantly, they also aided in producing a story behind each code that would later lead to the development of more focused coding, as described in section 5.2.4.

Further to the use of process coding, In Vivo coding preserved the language used by participants. Charmaz (2006, p. 55) refers to In Vivo codes as symbolic markers of participants’ speech and meanings. Rather than impose terminology assigned by the researcher, coding consisted of actual words or phrases used by the participants. In this way the ‘story’ of interprofessional learning, what has been effective and less effective in collaboration as per the participants remained at the forefront of analysis.

Examination of critical incidents for In Vivo codes was mindful of aspects noted by Charmaz (2006, p.55) that prove useful when integrating into theory:

- Those general terms that flag condensed but significant meanings,
- a participant’s innovative term that captures meanings or experience, and
- insider shorthand terms specific to a particular group that reflect perspective.

To explain the process of In Vivo coding, Figure 5.4 contains a short transcript which identifies in bold, sample codes from a critical incident labelled as 'Non-English-speaking migrant'

> *It was **really advantageous yesterday** I came back from leave and had a **fairly busy day, a few jobs**, and had the **opportunity to work with lots of agencies to be** honest. One of note is a fairly interesting one, a family from Afghanistan and **non-English speaking**. The wife had epigastric upset that is travelling around town at the moment so **she is pretty uncomfortable** and …I was called...they called an ambulance a couple of hours before we arrived, low acuity as deemed by comms (communications). The family got **tired of waiting** from ambulance and sought other means to get some help so they **went to the migrant resource centre** here in* [rural location]. *So, **they have got some social workers and things up there.** So, they bought a **translator and a case worker** to the family to talk to them prior to ambulance arrival.* (H1, paramedic)

Figure 5.4 Example of In Vivo coding from 'Non-English-speaking migrant'

In Vivo coding illustrates a challenging work environment (fairly busy day; she is pretty uncomfortable; tired of waiting), that is diverse (opportunity to work with lots of agencies; went to the migrant resource centre; have got some social workers and things up there; translator and a case worker), involving, and considerate of the patient (non-English speaking; she is pretty uncomfortable), with an effective interprofessional process (really advantageous yesterday).

Although In Vivo coding resulted in 2,741 individual word clusters, the purpose of In Vivo codes is not to produce a numerical value, but rather to highlight participant meaning in critical incidents. These meanings combine with process codes to provide a grounding from which themes and categories can emerge. Combining In Vivo and process coding completes the stages of initial coding. Table 5.3 provides an illustration of complete initial coding.

Table 5.3 Example of Initial Coding

Interview Text	Initial Coding
So, we meet at [rural location], *when we left here they (communications) didn't have a crew, and they met us there and it was New Norfolk! And they had just cleared the Royal and hadn't had a break, and they had a vollie who was doing the paramedic course. I get out and have a talk, and he said, 'what have you got', and I said queried TIA, and he looked in the back (expires deeply) and says, 'how bloody long are we going to be ramped with this bloke! How come you couldn't take him all the way"? I said I didn't call you mate. Like comms have called you, because it was dark, and it was raining and about this hour of the night (6pm) back in winter. It's not my fault that, you know. I'm thinking, you're getting paid for this and I'm not.* *Some of them* [other ambulance crews] *are good. Like you will get crews that say, you know, they realise you have used a bit of gear, you know, 'what do you want', 'here's the truck, you need a mask or whatever', I just say I need to rob your truck for a bit. Get in the back and say I need that that and that!* (Ambulance volunteer)	Demanding: Shortage of staff "Didn't have a crew" Demanding: "hadn't had a break" "have a talk" "what have you got" Reacting: "expires deeply" Demanding: "How bloody long" Depersonalising: "This bloke" Blaming: "How come you didn't take him all the way" "I didn't call you" "Dark" "Raining" "This hour of the night" Defending: "it's not my fault" "You're getting paid I'm not" Qualifier: "Some of them are good" Assisting: "What do you want" Willing to offer help / equipment

Process coding around episodes of collaboration produced a total of 59 codes, the aim of which were to describe and reflect on actions and processes of paramedic work. Table 5.4 provides a list of process codes. Some of the coding appearing in the example given in Table 5.3 does not appear among the process codes listed in Table 5.4. Saldana (2009, p. 82) suggests that as one purpose of coding in grounded theory is to develop categories or concepts from codes, sub-codes with specific referents

may also appear. These sub-codes may help create concepts or become concepts following later analysis. Examples of process sub codes (such as, Demanding, Assisting, Blaming) appear in Table 5.3. As a sub code, 'demanding' for example may form part of the process codes 'challenging' or 'distressing'. In Table 5.3 some participant codes are also qualified, and this appears with the statement "some of them are good", in which the participant offers qualification of earlier comments regarding working with other professionals.

While some codes in Table 5.4 appear to be very similar, each represents different processes or actions. 'Communicating' and 'discussing' are two such similar codes. An example of 'discussing' appears in the following transcript from an ECP:

> *... have dealt with the pharmacist. I rang their pharmacist and had a talk to them about some constipation treatment ...* [I have] *no issues about talking about those sort of things…Listen to me, yeah ... backup step* [for treatment] … *go to their pharmacist or GP and have a word and see what we could work out* (H1, paramedic).

In this case, the participant describes discussions with a pharmacist as being beneficial to the planning of overall care. In other words, a conversation takes place around an area for concern, in this case patient treatment.

Beyond a conversation or discussion, is the code 'communication' where discussion may have been part of the process, but other complex interactions also occur. Issues of respect, assertiveness and leadership appear as important overall components of the communication process and of being able to work with other professionals in this example:

> *Able to communicate ... not treat you like a moron ... When a paramedic has turned up and we have got a cluster [f**k] going on ... often the communication then isn't really good. Probably our fault as well. Not assertive enough, or not providing leadership ... then the doctors will step up. Sometimes they are treated like that as well ... sometimes it gets really messy with multiple casualties. But it is that leadership management stuff (C3, nurse).*

Table 5.4 Process Codes

Accepting	Gendering	Respecting
Accepting responsibility	Humouring	Respecting qualification
Adhering to protocol	Incorporating community	Restraining by cost
Appreciating	Including	Restraining by policy
Appreciating rurality	Interfering	Role awareness
Categorising	Investigating solutions	Rushing in
Challenging	Knowing team members	Satisfying
Communicating	Lacking knowledge	Selecting team members
Criticising	Leading	Sharing
De personalising	Obstructing	Socialising
De skilling	Owning individuality	Subverting
Discussing	Patronising	Supporting
Disorganisation	Personalising	Training
Distressing	Personalities	Trusting
Diverse environment	Placing patient first	Uncertainty
Diverse skills	Positioning	Understanding
Dominating	Raising professional awareness	Valuing
Dramatizing	Reassuring	Valuing experience
Ensuring safety	Referring	Working out solutions
Excluding		Working together

5.2.4 Focused Coding

First cycle coding is a way of providing initial, broad concepts from participant statements. Focused coding within constructivist grounded theory further refines these initial codes. It merges those that are conceptually similar and potentially discards any that may be marginal or redundant (Charmaz, 2006, p. 58; Saldana, 2009, p. 149). It is from this focused coding that main concepts develop during the analysis process.

The goal of focused coding is to condense material in order to develop relevant categories or concepts (Saldana, 2009, p. 155). Here, as *per* Charmaz (2006, p. 138), decisions were made as to which first cycle codes were most relevant or appropriate, and important areas were condensed and highlighted as they emerged from data. By conducting a focused coding approach, coding from critical incidents in this study collated across incidents and participants to develop general concepts.

The example in Table 5.5 is an excerpt from one critical incident and shows the transition from initial In Vivo and process coding, through to more focused coding. The process codes 'diverse environment', 'challenging' and 'personalising' for example, merge to form the focused code 'working in difficult circumstances'. In Vivo codes such as "fairly busy day" or "she is pretty uncomfortable" serve to further reinforce this focused code. The focused codes in this example all relate to working in interprofessional teams where, although circumstances may be diverse and difficult at times, there is a willingness for different professionals to collaborate in a manner that is conducive to maintain effective patient care. These focused codes then combine later in analysis to help form a main concept of cooperation.

Table 5.5 Focused coding from process and In Vivo coding

Critical Incident Non-English-Speaking Migrant (In Vivo coding in bold)	**Process Code**	**Focused Code**
*It was **really advantageous yesterday** I came back from leave and had a **fairly busy day, a few jobs** and had the **opportunity to work with lots of agencies to be** honest. One of note is a fairly interesting one, a family from Afghanistan and **non-English speaking**. The wife had epigastric upset that is travelling around town at the moment so **she is pretty uncomfortable** and ...I was called...they called an ambulance a couple of hours before we arrived, low acuity as deemed by comms. The family got **tired of waiting** from ambulance and sought other means to get some help so they **went to the migrant resource centre** here in Launceston. So, **they have got some social workers and things up there.** So, they bought a **translator and a case worker** to the family to talk to them prior to ambulance arrival.*	Diverse environment Challenging Personalising Placing patient first Working out solutions Working together	Working in difficult circumstances Diversity of work Involving the patient Effective working within a team Willingness to work together

Focused coding produced a total of eighteen codes. The discarding of marginal information did not mean the exclusion of all initial codes with minimal participant contribution. For example, only three participants reveal the process code of 'socialising'. Rather than disregard this code, a merging with the focused codes of 'working in a rural environment' and 'satisfaction of working in a team' helped describe aspects of team working in a rural environment.

An important feature of the focused coding process was that of verification by both the investigator and research supervisors. Each worked independently on critical incident data in the process of establishing focused codes. Following this, group discussion served as a means of cross verification by which to identify new ideas or to resolve potential differences in opinion. Adding this diversity to the coding process helped confirm, validate, extend and refine findings (Green, *et al.*, 2007, p. 486).

A list of focused codes appears in Table 5.6. Each code exhibits a unique contribution to interprofessional interaction (noting the code emerged from initial significant critical incidents) and meets criteria as mentioned in Section 4.5, in that the behaviour observed made a significant contribution to the aim of the activity (Flanagan, 1954; Norman *et al*., 1992; Schluter *et al*., 2008).

Table 5.6 Focused codes

Determining roles within team	Obstructions to teamwork
Differences in opinion	Professional ownership
Diversity of work	Role and professional awareness
Effects of gender	Satisfaction in working in a team
Effects of individuals	Skills and knowledge
Effective working within a team	Willingness to work together
Influence of communication	Working in a rural environment
Involving the patient	Working in difficult circumstances
Knowing team members	Working solutions around care

Importantly, as cited in Appendix K, focused codes are generally represented across all participants and rural sites.

5.2.5 Dealing with ambiguity or negative cases

Focused coding is important in that some ambiguity arose when some codes were not consistent across all sites of the study. A common error in theoretical sampling is the confusion with gathering data until the same patterns begin to emerge. In other words, the researcher fails to aim data gathering toward the explicit development of theoretical categories. Negative cases should be used to find new variables or to provide alternative explanations in developing theory (Charmaz, 2006, p. 102). Rather than discard what may seem insignificant outliers, where some ambiguity arose in coding, in this study seeking further explanation gave strength to the development of emerging theory.

Although focused coding was largely consistent across sites, some anomalies did arise. One explanation for some codes not appearing across all sites is that of regional properties unique to some areas. The focused codes ‘diversity of work’ and ‘working solutions around care’ are not part of participant contribution in the RA5 site. This site consists of ambulance volunteers remote from any other professional backup. Examination of other data, including memos, reveals possible reasons for the absence of these codes. There is only a brief mention of working with other emergency service personnel in the pre-hospital arena, and a distinct separation between volunteer work and hospital work. One memo even mentions an invisible ‘line’ in the hospital, over which the ambulance volunteers ‘could not cross’.

Although there is diversity in the types of cases attended, the opportunity for this diversity to occur across professions, or for various professionals to work in joint solutions around care appears limited. In line with theoretical sampling, seeking a second RA5 location to help gain further information was not possible due to a volunteer educator at the site advising against conducting interviews, because of personal clashes and several episodes of ‘in-fighting’.

Similarly, the focused code ‘effects of gender’ did not arise in the RA2 group. This group consists of ECPs and (without further investigation) it is difficult to attribute the absence of this code to either RA2 or ECP classifications; or indeed the gender mix of participants. A limited ECP cohort means that theoretical sampling

to further investigate this code is not possible within the rural settings of this study. Critical incidents from the ECP group contributes to all other codes.

5.3 Conceptualising theory from codes

Initial, and then focused, coding provides a basis from which further analysis generates categories and main themes, leading to advancement of a theory on interprofessional learning and paramedic practice. Chapter 4 first describes the journey toward theory development, where a constructivist approach to grounded theory is an emphasis on practices and actions; where the questions of what people assume is real, and how they construct and act on this reality is to the forefront (Charmaz, 2006, pp. 125-126).

Using this constructivist concept and noting that that the goal of theory is to offer explanation (Glaser & Strauss, 1965, p. 3), an examination of focused codes went through several stages prior to a final presentation of theory on interprofessional learning and paramedic practice. As noted by Charmaz, (1990, pp. 1168-1170) this process is important in the move toward producing grounded theory. Once terms have been raised to concepts, more conceptual questions are asked, and further discoveries and clarification of concepts are raised through writing and rewriting.

5.3.1 From codes to theory

In the first of these stages five main concepts emerged: communication, relationships, environment, boundaries and patient outcome. Each of these main concepts is multifaceted. Table 5.7 provides descriptions of each concept.

The presentation of these five main concepts, however, while emphasising processes, falls short of explaining the construction of practice and action from interprofessional learning. This led to further analysis of focused coding to help link and explain interprofessional learning in terms of action and practice rather than descriptions of process. Three main categories emerged; professional/personal interaction, collaboration and patient outcome, each operating along a spectrum of restriction or enhancement to interprofessional learning (see Figure 5.5).

Table 5.7 Main concepts from initial analysis

Concept	Description
Communication	Appreciation of experience by professionals, feedback, listening, procedures and policy.
Relationships	Knowing the people with whom professionals work with and for. Relationships formed between professionals are essential to the interprofessional environment.
Environment	Multitasking and interdependence as part of interprofessional learning environment
Boundaries	Separation of professions, the impact of individuals, and effective teamworking all played a part. To work within a system of boundaries was to accept to roles of others, recognising where professional limitations existed, and how combined professions could enhance care.
Patient outcome	Areas that impacted the outcome of patient care. The influence of policy and guidelines, working with non-traditional partners such as paramedics and social workers, a holistic approach to care involving multiple professions and finally, demonstrated interprofessional learning enhanced approach to overall patient care.

A central point of this spectrum is a state of collaboration, which describes the conditions by which participants in this rural based study worked with each other. Here, focused codes such as diversity of work, knowing team members, and willingness to work together, among others, show that both professional and personal relationships developed within a cooperative atmosphere of professional dependence. Rural colleagues worked together to achieve satisfactory outcomes of patient care. Despite this positive presentation of how colleagues worked together in a rural environment, limitations are present. Arising from focused codes such as 'obstructions to teamwork', or 'differences in opinion', factors such as hierarchy, poor individual behaviours, inadequate communication, or policies and procedures that failed to recognise local requirements work to restrict and constrain interprofessional collaboration.

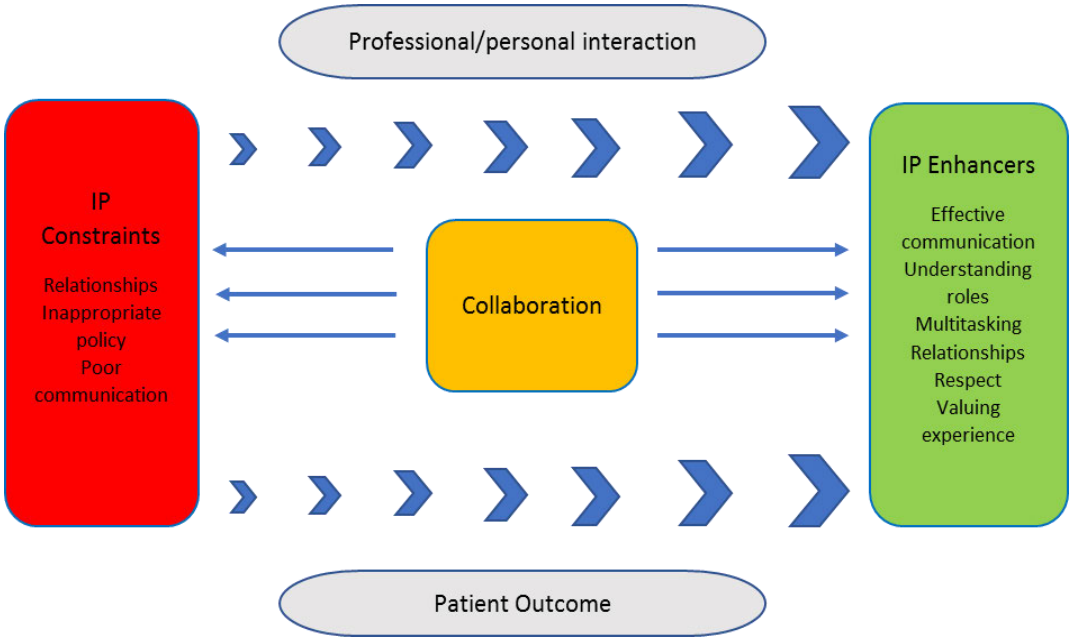


Figure 5.5 A spectrum of interprofessional learning identified from analysis

Interprofessional learning is a factor that emerges from the partnerships formed in the rural environment, and aspects such as personal and professional relationships, understanding and respect for roles and experience, effective communication and cooperative working not only helped sustain a normal collaborative state, but worked to promote interprofessional learning. These new categories are particularly useful, as they serve to present a model of power that suggests opposing forces that either constrained or enhanced collaboration.

Participant data, however, could further contribute to a more explanatory and comprehensive theory. The model (Figure 5.5) is more about collaboration, and not necessarily IPL, with constraints and enhancers treated as separate, opposing entities. There is no recognition that IPL could still exist in the presence of constraints. Likewise, although the model suggests a flow of power through constraints and enhancers, it denies the power that IPL could exert on the overall patient care process.

The process of analysis consists of constant comparison of data (Charmaz, 2006). Remembering from Section 5.2.3 that each code tells a story related to

interprofessional learning, both these first (Table 5.7) and second (Figure 5.5) stages of theory development open themselves to broader interrogation through constant comparison. On further examination, certain main themes thread through both first and second designs; these include the operational reality under which different professionals would work, the relationships developed, and the cooperative nature of interprofessional interaction. Each of these main themes arises through categories developed through constant comparison of data. Using these categories to develop main themes reveals a process to interprofessional learning, including an awareness of operational context, and a course of action leading toward IPL. Table 5.8 contains descriptions of categories and main themes.

It is on this basis that a *theory of interprofessional learning and rural paramedic practice* emerges. The definition of IPL in this study is one of an overarching term encompassing interprofessional education and interprofessional practice. It incorporates adult learning principles and ongoing active learning process between different cultures and professions, and aims to promote purposeful interaction with service users and carers, and quality patient care (NCIPECP, 2019).

The *theory of interprofessional learning and rural paramedic practice* elevates this definition of IPL to more detailed elements of collaboration and interaction and helps explain how purposeful interaction occurs. Interprofessional learning links with paramedic care not along a static dimension of individual siloed components, but in a dynamic process where operational barriers, relationships and cooperation can promote or restrict the learning process. For IPL to occur, interprofessional relationships and cooperation are paramount; but, so too, an awareness of operational context is necessary in order that a learning process can influence patient care. Borders between each concept, IPL, and patient care are fluid.

Table 5.8 Summary of categories and main themes

Main Theme	Category
Operational Barriers	**Protecting Turf** – *How some professionals wishing to collaborate find themselves restricted from equal participation.* **Workplace Culture** – *Where aspects such as hierarchy of gender can obstruct team interactions.*
Relationships	**Professional Acknowledgement** – *How acknowledgement of the roles and practices of others will aid collaboration.* **Reciprocity and Respect** – *The willingness to share knowledge and skills across professions, along with positive and active individual contribution builds working relationships.*
Cooperation	**Interdependence** – *A common purpose and reliance on other professionals to help complement patient care.* **Communication** – *The importance of effective communication and feedback in breaking down barriers and promoting collaboration.*

Just as operational barriers, interprofessional relationships and cooperation can inform IPL and patient care, the information flows bidirectionally. An example from this study is where an operational barrier (such as limited staffing levels in rural locations) can lead to the development of cooperative relationships, and the creation of partnerships, say between paramedics and nurses, by which new collaborative ways (paramedic assisting in emergency department) assisted in the delivery of patient care.

5.3.2 An illustration of coding through to main themes

To help explain the progression through coding to main themes is the following critical incident (Figure 5.6). In this case, an extended care paramedic changed a blocked indwelling urinary catheter on a quadriplegic patient. A community nurse was already present and had called for assistance, due to some difficulty with the catheter. The nurse and patient were expecting the need for transport to hospital. The ECP, with training in catheter care, proceeded to fit a new catheter. The use of a smaller size catheter created some anxiety on behalf of the patient, nurse and paramedic. Because of this anxiety, the paramedic then involved the patient, community nurse, and spinal care nurse *via* phone in consultation. A care plan

resulted which involved further checks on the patient in subsequent planned visits. This had the effect of reduced anxiety and a satisfactory outcome for the patient.

Critical Incident
Supra pubic catheter in quadriplegic patient (Participant H1, paramedic)
Transcript with In Vivo coding in bold
H1: **Another issue** was one of our regular quad [quadriplegics] out in the community who I visited yesterday. **So, she was having some trouble with her SPC (supra pubic) catheter**, the **regular community nurse had come in and couldn't get the indwelling catheter out**, so the SPC catheter, balloon down, couldn't do it. So, when I got to work at 10.30 they said well there is a **paramedic** coming on at 10.30 who will **completely help you with your catheter – you will be happy to know!! (Laughs). Very good!!** So, when I arrived there is no community nurse and the patient is lying in bed, so right. She had had some sediment [in the catheter] so it had **obviously blocked, and she needed it replaced**. She said, well **I don't want to go to hospital, I'm happy to have a look and see if we can improve things** if you are willing to let it happen. **I would much rather stay at home**, rather than go to hospital. So, we will see what we can do. I managed to get the 18g SPC out, non-**traumatic, everything was comfortable**. **Couldn't get an 18 (Gauge) back in, therein lies the problem – bugger!** So, the next step is to downgrade. Went to a 16, couldn't get a 16 in but got a 14 in**. So, a 14 was draining happily**, all that sort of stuff. **The patient was a bit concerned**. She had an 18 and now had a 14 so, what sort of problems am I going to have. If it stays there less than 24 hours what sort of problems. Look, I said it is the same catheter, it can stay as long as your 18 and will drain freely as long as we are not having any problems. The 14 is obviously a smaller gauge, so if you have any sediment it is more likely to get blocked**. She got really upset and uptight**, her blood pressure went up and I thought, oh no, so **she was really agitated at that stage**. **I got her to talk with her community nurse and the spinal nurse**, so just to **ease her anxiety** if you like.

Transcript with In Vivo coding in bold
We had done the right thing, and everything was fine, and **after that talk with the community nurse** the **patient settled a bit** with **a plan that the community nurse would come in this morning**, 24 hours later, and we would try and get a larger bore catheter through what was existing there. In the end everything settled down, the blood pressure came down, **the patient was a little more comfortable**. Again, from an external perspective it is just **nice to have that existing care plan for patients and use them for other things than just doing my job.**
Context
Request by community nurse for paramedic (ECP) assistance. Community nurses aware of ECP roles through prior contact
Reflection
Joint care was not only about sharing skills but had a benefit of holistic care for the patient. Treatment was calming and able to relax the patient to the degree of physiological change in blood pressure and anxiety.
Learning
Collaboration can incorporate immediate care between professionals but can also lead to enhanced ongoing care if colleagues are willing to recognise different approaches and work with each other in planned approaches to patient outcome.
Process codes
Accepting, role awareness, placing patient first, supporting, reassuring, referring, working together, communicating, knowing team members, working out solutions, including, satisfying, valuing, trusting, investigating solutions
Focused Codes
Effective working within a team, satisfaction in working in a team, willingness to work together, influence of communication, knowing team members, role and professional awareness, working solutions around care, involving the patient
Main Concepts
Professional acknowledgement, reciprocity and respect, interdependence, communication
Themes
Relationships, cooperation

Figure 5.6 Critical incident from transcript to themes

Placing a wider context around this episode of care and demonstrating the importance of constant comparison of data in constructivist grounded theory, were comments from other participant interviews. It was this wider context that introduced the theme of operational barriers and, importantly, demonstrates learning could take place despite these barriers. The initial stages of ECP training saw some adaptation around limitations in policy and procedure to enable the care given in this example. Solutions as to how to allow the ECPs to train in new practical skills, such as catheter care in the hospital environment needed development, as limited hospital training places were available (these are usually reserved for other health care students). To enable workaround of this 'protection of turf', new professional relationships evolved, forging and acknowledging the role of the ECP. This incorporated a collaborative approach, developing professional networks with effective communication pathways, as shown in this comment by a nurse:

> *Getting that project together was very positive, it wasn't frustrating.it was very straight forward. A great process, it showed how it can happen with good networks, and getting down barriers. Wasn't sort of red tape in the way, could work it out between ourselves, quite easy, wasn't a lot of mucking around to make it happen … good communication between us, on my level and your level … worked through those issues. We didn't let them get in the way* (H3, nurse*)*

Further, although having dealt with some restrictive barriers and developing relationships that helped promote effective training and ongoing care, the role of ECPs was still little known in the pre-hospital environment. It took time for other professionals such as community nurses to be aware of the work of ECPs. This awareness found footing both by contact whilst on case, and with ongoing education sessions in the wider health care community. Part of the ECP program was to actively promote their role through information sessions with medical centres and other health care practitioners. ECPs too, can enhance their understanding of the roles of others.

> *So outside agencies are a really key part of my role. They are as important as my CPGs* [clinical practice guidelines] *I reckon.* (H1, paramedic).

Paramedics (ECPs) learnt more of the role of community-based nurses; but the nurses also learnt about new roles for some paramedics. Once community nurses experienced the care given by and were aware of the roles of the ECP they were willing to involve the ECPs more in home-based patient care. The reverse also occurs, with ECPs referring care to nursing staff. Rather than independent or multiprofessional practice, these practitioners in pre-hospital care displayed a common purpose and interdependence in the provision of patient care. Through effective communication as part of an interprofessional learning experience, this then enhanced the patient care given. Of most relevance to the outcome of this type of interprofessional learning episode, are the patients' responses; for example:

> *... wife came over and gave me a kiss (smiles)* (B1, paramedic)
>
> *... went from writing in agony ... came over with a smile* (B1, paramedic)
>
> *... said thankyou* (H1, paramedic)
>
> *... patient really appreciated the chance to stay home* (H1, paramedic)
>
> *... best publicity comes from doing a good turn to someone else!* (B2, paramedic).

These responses demonstrate the heart of interprofessional learning where the IPL philosophy supports health professionals working collaboratively in a health care setting with the aim to promote purposeful interaction with service users and carers, and quality patient centred care (NCIPECP, 2019). The paramedic care illustrated has tangible displays of benefit to the end receivers of the product of that learning.

5.4 Chapter summary

This chapter expands on the methods used in this constructivist grounded theory study on interprofessional learning and paramedic care and presents a detailed description of the analytical process through data gathering to coding and emergence of theory.

CIT forms the main method of data generation and incorporates several key factors: observation of a defined event, and positive or negative elements attributed to the event. For this study, definition of a 'critical incident' is descriptions of effective and less-effective episodes of collaboration obtained during semi-structured interviews with paramedics, health professionals, and others who are involved with paramedics in the provision of patient care. To ensure a richness to data, critical incidents met the following criteria:

- the incident described where participants worked together;
- there was context around the incident;
- some reflection had taken place; and
- the interview participants could identify that some learning had taken place.

Data analysis followed a process aligned with constructivist grounded theory. This process began with first cycle coding, which combines the uses of direct 'In Vivo' quotes from participants, with codes which denote specific actions. Focused coding merges conceptually similar codes in order to form main concepts. The incorporation of information other than interview data includes the use of memos from field notes. The process of analysis continues using constant comparison of codes as they emerge, and a saturation point of information is determined by theoretical sampling where investigation continued until completion of theoretical concepts.

Chapters 6 and 7 present the findings of the analytical process, outline the core concepts of this study and propose a grounded theory of interprofessional learning and paramedic care.

Chapter 6: Findings

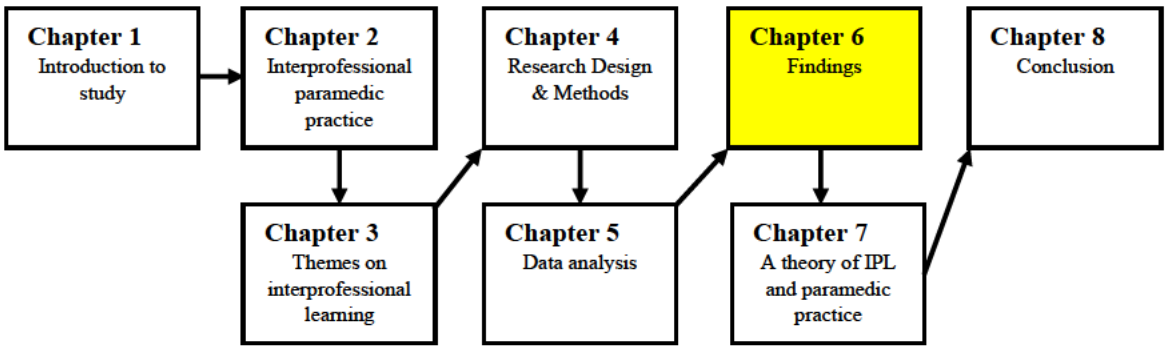


Figure 6.1 Thesis map, Chapter 6

6.1 Introduction

This chapter expands and explains the categories and main themes introduced in Chapter 5. These themes show that interprofessional learning links with paramedic care in a dynamic process. Here, operational barriers, relationships and cooperation can promote or restrict the learning process.

The first theme of *relationships* is presented in Section 6.2. This involves professional acknowledgement, and the ways this acknowledgement of the roles and practices of others aids collaboration. It also includes reciprocity and respect, where the willingness to share knowledge and skills across professions builds working relationships.

The theme of *cooperation*, explained in Section 6.3, consists of interdependence, involving a common purpose and reliance on other professionals to help complement patient care; and communication, where effective communication and feedback can break down barriers and promote collaboration.

Finally, Section 6.4 discusses *operational barriers,* which include the categories of protecting turf, where some professionals wishing to collaborate find themselves restricted from equal participation; and workplace culture, where aspects such as hierarchy or gender can obstruct team interactions.

In line with a constructivist grounded theory approach, this chapter uses the responses *verbatim* from participants, to show findings in a way that preserves the intention and language of those participants. Whilst individual quotes form part of this chapter, the main themes and categories behind these quotes emerge as part of an extensive analytical process. The grounded theory approach used involves taking comparisons from data to construction various concepts, while simultaneously tying these abstractions to data (Charmaz, 2006, p. 181). An important part of this process is researcher reflexivity, where memos, field notes, and extensive working experience as a paramedic helps add credibility (Charmaz, 2006, p.182) to the findings as they appear in this chapter.

6.2 Relationships

The first theme introduced in the findings is that of *relationships,* with two categories under this theme; namely, *professional acknowledgement* and *reciprocity and respect.* The individuals involved in collaborative care with paramedics in rural areas work together to build collegial working relationships. These individuals do not work in isolation and they display knowledge and acknowledgement of different professional roles.

This section describes findings relevant to these relationships. First, 'professional acknowledgement' encompasses how acknowledgement of the roles and practices of others helps aid collaboration. 'Reciprocity and respect' are discussed to demonstrate a willingness to share knowledge and skills across professions, and how positive and active individual contribution builds working relationships.

6.2.1 Professional Acknowledgment

The first category under the theme of relationships is professional acknowledgement. Participants suggest knowledge and acknowledgement of the differing roles of colleagues is a normal part of life as a rural health professional. This proves to be an essential component in lifting professional working from a siloed approach to an interprofessional one. Different colleagues became familiar with the ways others interact over time, sometimes commencing with something as simple as just an

introduction, but invariably becoming more complex, and extending to sharing knowledge around roles and work practices. Paramedics and other health care professionals took time to get to know others involved in the process of patient care on both a personal and professional level. One participant contends it would have been easy for paramedics to simply handover patients at hospital without any further interaction, but also concedes building relationships with other professionals was important.

> *I should even bother* [sic]. *Just take them* [patients] *to the hospital, drop them there and bugger off! But I am trying to be helpful … they [other medical professionals] usually come to us and we share. Depends on your relationship with the doctor as well, if you have done other jobs with them* (F2, paramedic).

Getting to know other colleagues in health care practice helps lift relationships to another level; one nurse participant even describes paramedics as part of a health care 'family'.

> *Ambulance they were just like colleagues to us. Like we knew them all really well, used to socialise with the ambos, part of the family. It was very close knit* (A3, nurse).

Part of this relationship-building and professional acknowledgement is the recognition that patient care extends beyond a traditional hospital-based health care setting of medical and nursing staff. A range of professional relationships outside of the normal 'doctor, nurse, paramedic' structure is especially evident in many of the rural communities of this study. Those recognised and included as relevant collaborators in paramedic care included other hospital-based professionals, such as radiologists and extended to community-based health care workers. One paramedic (H1) points out that all are part of a "wider health community … allied health, physiotherapists or radiologists, pharmacists, are all included."

Extended care paramedic (ECP)'s (H1) response appears in the context that these paramedics would consult with various other health care professionals to help facilitate the management of patients in their home environments. A pharmacist for example, is part of planning a means of organising more efficient ways of ensuring

correct medication compliance. This process incorporates more than a phone conversation and would involve the ECP conducting face-to-face meetings.

The development of similar relationships extends beyond the ECP group, with several other paramedics noting how their associations with community nurses, or allied health professionals assist with the delivery of more comprehensive health care to patients in the rural community. For example, one paramedic participant comments on the referral of a patient, requiring assistance with activities of daily living, to a community nursing health team. The paramedic had knowledge of the roles of community nurses in the area and could confidently refer the patient, when the patient herself was reluctant to seek assistance:

> *Though she* [patient] *was in this remote little area and community, she wouldn't be a person that would ask for help, you could see there was various issues at home. The next day I went up to the hospital went and spoke to the community nurse so that the community nurse could go and do what community nurses are allowed to, go and say "hello, how are you going" you know, and then make sure of a follow up* (F2, paramedic).

Importantly, non-health care related professions, such as other emergency care workers (police, fire or state emergency service members), would be part of patient care scenarios. Through the establishment of harmonious working relationships, and acknowledgement of the roles others play, paramedics can utilise the assistance of police or others, in helping manage care in the pre-hospital environment. As one paramedic explains:

> *The way that the police work they are extremely happy to come and help us. Working closely together, having good working relationships* (E1, paramedic).

Relationships, however, do not just happen 'out of the ether'. It was on this basis that a differentiation between independent multiprofessional collaboration and strong interprofessional partnership became evident. What exists in the rural areas of this study consists of more than a simple professional acknowledgement of joint working and is an intertwining of both the personal and professional. In the response

below, one paramedic participant describes bringing chocolates to nursing staff after an especially difficult episode of patient care, in which they had all participated:

> *After the job I went and bought some chocolates for the nurses to show my appreciation of the job. Even though I hadn't been there for a while they were asking when I was going to turn up again, so I could bring more chocolates to the hospital! (laughs)* (B1, paramedic).

Paramedic B1's, response also illustrates how paramedics work to actively know their health care colleagues. Paramedics, rather than just sitting back and waiting for emergency cases to come in, would often comment on how they would seek contact with different colleagues. Such contact would involve attending hospital staff meetings, or attending and conducting joint training sessions with other emergency care services, or even just attending regular morning tea sessions at the local hospital.

The creation and maintenance of these relationships highlights a feature of working in a rural environment: paramedics are part of an interdependent health care team in which members understand and work in conjunction with the roles of others. This interdependence goes beyond health and emergency care workers and includes the acknowledgement that other community resources can be utilised in the provision of patient care. Often comments would arise on the integration of local community members into the sphere of paramedic relations. These range from social interaction, such as a new paramedic making him/herself known to local store holders, and first aid education, to liaison with council on potential emergency care requirements: there was whole of community approach. As paramedic F1 below suggests, this has the effect where, by increasing knowledge around the role of the paramedic, community resources can be drawn upon in the provision of patient care.

> *I love working in a rural area, you have got so many resources available you can use and work with … the other thing is that you have no professional back up, no ICP* [intensive care paramedic] *to back you up, it is usually you, but there is always in the local community lots of people you can call on that will assist* (F1, paramedic)

It is this sense of community, developed through emerging relationships, and acknowledgement of the benefits others can bring to a team approach, that shifts paramedic practice from a siloed pre-hospital environment to being part of a multifaceted approach to patient care. This is an approach built upon a mutual trust and respect.

6.2.2 Reciprocity and respect

The idea of mutual trust and respect relates to the second category under the theme of relationships; that of reciprocity and respect. This section demonstrates that relationships involving rural paramedics incorporate respect between different professionals, with these relationships built on mutual trust. The trust shown results in actions reciprocated between colleagues for mutual benefit and sets a foundation for interprofessional learning to occur.

An example of the effectiveness of such an approach comes from one interview (C4, ambulance volunteer). The ambulance volunteer explained the attendance of multiple services at a complex road accident scene, that included various levels of paramedic and ambulance volunteers, doctors, other medical staff, other emergency services and community members. Rather than a scene of autonomous practitioners working to different guidelines or challenging each other in terms of a hierarchy of control, harmonious relations resulted in efficient work practices and a good patient outcome. The interdependence shown in this type of practice demonstrates the degree to which professionals (at such an incident) had developed mutual trust and joint reliance.

> *We went to 2 or 3 cars* [in an accident], *on a Sunday night. When everyone had* [cervical] *collars on! One sitting there he had a cardiac history, 4 or 5* [cardiac] *stents put in. He had a busted* [sic] *shoulder or collar bone, I think. One young guy trapped in the car, massive lump on the side of his head. There was a young female doctor from A&E* [accident & emergency] *at* [urban hospital]. *I said you are right you can look after him, I will just have a quick look at these guys, the paramedics turned up, with a vollie* [volunteer],

I said what we have got. We have got one over there we have another one over there, those two they need to go. You know - it was a good outcome (C4, ambulance volunteer).

This inherent trust, as a part of established relationships, appears at more than a clinical level and demonstrates reciprocity between different groups. One area that helps cement the concept of trust in strengthening relationships, contains elements of gender. This is particularly pertinent, given that the same area appears as a potential obstruction to interprofessional practice, a discussion of which is in Section 6.4.2. The issue of trust in this form appears in examples where safety of personnel is concerned, such as in the responses below, when different female nursing staff felt reassured by the presence of male paramedics:

We have only got two girls on of an evening, have got one male nurse. Only you and the doctor in the A & E unit, because they [mental health patients] get agitated or something. It is just, it is more of a protective thing. [Male paramedic] *is nice and tall and strong (laugh)* (F3, nurse)

Pretty dangerous things happen along the way … there was one guy, he decided an hour into the trip he wanted to assault me, wanting more morphine. Jumped up and started laying in. But they [Male paramedics] *were there. I felt safe and secure knowing they were there, we just opened the door and let him go!* (A3, nurse)

These examples show the potential of gender disparity in interprofessional work; however, both female participants in these examples are in positions of professional power as the nurses in charge of the incidents cited. This is not an issue of gender superiority; rather, they had chosen to use the knowledge and trust gained through relationships with paramedic colleagues, to make best of a tricky situation. The paramedics also benefitted from the trust developed and were willing to assist.

As much as acknowledging other professionals is important in founding steps toward interprofessional learning, so too is the efforts of individuals. A very important point made by one paramedic is that it takes time to build up professional rapport and acceptance of others. Paramedic participant (E1) took control of a situation where he was new to an area, to build harmonious working relationships.

He notes that rather than shy away from abrupt behaviour, a better solution to difficulties in working with some people is a ‘go slow’ approach to building professional bonds.

> *After a while of working with them* [other professionals] *bound to have a better rapport. Personality differences really. Exact same individual working permanently in the area, their relationship would probably evolve, become better. First time you come across someone who is a bit abrupt … if you work with that person again and again, get to know them, get on with that person really well* (E1, paramedic).

This works particularly well in one region where one doctor was renowned for having an obstructive approach to other medical personnel. Previous staff warned the paramedic that this doctor was difficult to deal with and the best approach was to simply avoid him; however, the paramedic made a concerted effort to approach the doctor on a personal and professional level and build up a trusting and respectful relationship over time. As the paramedic states, this approach meant that a congenial, rather than obstructive, relationship developed between them.

> *I earned a hell of a lot of brownie points when I first started there, saying hopefully we can work through together and have a team approach and all that kind of stuff … bear with me a bit because I am quite new … As a result, with this particular GP I never had any issues with him* (E1, paramedic).

This same participant indicates that perhaps past complaints about the doctor’s behaviour may not have all been one-sided; observing that the approach of some previous paramedics may have come across to the doctor as somewhat overbearing and isolating on their behalf. The paramedic participant states his actions were “compared to some paramedics” who adopted an attitude from the outset of, “I am a paramedic, I know what I am doing” (E1, paramedic).

Importantly, the work of individuals in establishing trusting relationships, extends beyond health care colleagues, and includes other professions in the general community. An example is from a paramedic who approached a local council (responsible for health, safety and wellbeing of local communities) to help solve a

problem around a lack of signage in one area which was hindering the ability of paramedics to locate patient residences:

> *Good working relationship with the town council. One of the vollies* [volunteers] *we have attracted was the Assistant General Manager* [of the council], *no doubt has helped. Poor signage in terms of house numbers, things like that, so wasn't quite sure whose responsibility that was. I just kind of approached the council about it, they have fixed it all up* (E1, paramedic).

This and other examples demonstrate the ability of a paramedic to take a positive leadership role, rather than fitting into or adopting a hierarchical form of control; this is integral in the development of interprofessional relationships. A mature approach, in the absence of over officious tones, and encouraging the involvement of all participants, builds respect among team members.

With effective leadership and individual involvement in team interactions, participants express direct recognition of the importance of 'senior' or experienced professionals as team members. As the response from the nurse participant (H3) below indicates, experienced professionals are not controlling, but are seen to promote reciprocal collaboration that would enhance interdisciplinary communication processes and contribute to discussion and outcomes of an interprofessional team.

> *They* [experienced professionals] *are better at communicating,* [be]*cause, issues is too strong a word, people are opinionated, because they know their discipline so well. They are senior at it, so they are confident, it makes for healthy team discussions, which isn't a bad thing.*
>
> *It is important to get the right team players on a small team. They are seniors, means they are very comfortable with a lot and their profession, it makes it easier to look at a whole disciplinary thing, they can work outside their scope quite safely, they can look holistically at the patient* (H3, nurse).

These respectful interactions between colleagues of different levels of experience help to encourage some participants to seek and reinforce knowledge. This is in some ways driven by a situational need arising from the remoteness of some rural locations; as in the previous examples, in which nurses (in the absence of security personnel) called on paramedics to assist with threatening patients. Such situational needs extended beyond safety, however, and the issue of keeping up skills and knowledge in rural areas arose on several occasions. This was not only from those with less experience, "quite an issue about keeping our skills" (G1, ambulance volunteer), but also those with higher levels of training "if you don't do something for a while you lose your skills" (A3, nurse).

Respect, and its connection with the seeking of further knowledge, also extends beyond various interactions and manifested in regard for the role paramedics have in the local health care community. One paramedic comments on how active engagement with the local hospital results in knowledge of the processes involved in working with staff in that hospital:

> *Encouraged in the early days to find out as much as I could. Hospital processes, what is going to happen, can they or can't they. Now I know that much more* (B2, paramedic).

Due to the remoteness of some rural locations, some professionals reinforce their professional knowledge by travelling to other areas; others involve themselves in the education of other professionals. For example, when a paramedic conducts education sessions for nursing staff:

> *I was really worried that we would lose some of those skills, we probably have in reality. I had a conversation with* [paramedic]. *I am really keen. He was really happy to share like a 15-minute half hour session, or, he's done other little things when he s been here, that's probably been fantastic. The nurses have appreciated it* (D2, nurse).

Nursing staff also used the same paramedic to educate a local doctor in intravenous cannulation. The doctor lacked some confidence in the procedure, and rather than risk an internal embarrassment for the doctor having to undertake training with nursing staff, the paramedic assisted:

> *He would be happy to help* [doctor], *would help him to cannulate. Was agreed by all parties … go up there to the station and he could do it there. The RNs* [nurses] *can cannulate but we didn't want him* [doctor] *to feel bad, just the learning environment* (D2, nurse).

The two previous examples encapsulate the concepts of professional acknowledgement: reciprocity and respect. Through the building of professional relationships, paramedics become more than providers of pre-hospital care. They integrate within a health care environment, extending beyond patient care alone. The respect shown to paramedics in asking them to assist in education sessions for hospital staff is reciprocated in the willingness to participate in these episodes of learning.

6.3 Cooperation

Relationships form the first part of a trio of themes concerning IPL and paramedic practice; the second is that of cooperation. The ability and willingness of participants to cooperate with each other is a second essential feature of interprofessional interaction. Rather than simply work alongside each other, professionals in the areas of this study are interdependent practitioners who demonstrate an understanding of each other's roles and openly communicate in collaborative practice. This section discusses the theme of cooperation, underpinned by categories of interdependence and communication.

6.3.1 Interdependence

The first category under the theme of cooperation is *interdependence*. This is where different professions in the rural sites of this study display common purpose and mutual dependence in the provision of patient care. The participants of this study indicate gaining and sharing of knowledge that heightens understanding of the roles of others, within an environment of interprofessional learning. This led to interdependent rather than independent practice and is described in several and varied situations.

In a clinical setting, an ambulance volunteer who had previous experience as a nurse, admits that a pre-hospital situation regarding patient airway control was different to what she had experienced in a hospital environment.

> *Oh, I don't know about airways in this setting (laughs)!!* (G1, ambulance volunteer).

Another illustration of this void between pre-hospital practice and that experienced in the hospital, is given in an observation that some nurses, while able to provide hospital-based patient care, had little concept of the dangers and intricacies involved when transferring that care to the scenario of a motor car accident.

> *They* [nurses] *had a tendency to rush into the cars, didn't they? And you had to … Yeah. They didn't have any concept of* [safety] *… I hope they have a better concept now. They are primarily concerned with the patient in the vehicle* (G2, ambulance volunteer).

In a similar vein, but from a non-clinical perspective the response below, ambulance volunteer (G1), demonstrates that a lack of local knowledge by police sometimes led to difficult circumstances around how to load patients onto police boats, when required.

> *Little bit of a lack of knowledge which surprised me. It is not safe trying to get them on a stretcher to the lower landing. Yeah, and it is often times the weather isn't suitable to have a boat there anyway. Just not safe trying to get them on, look at the configuration of the landing it is just not safe* (G1, ambulance volunteer).

Paramedic (D4) implied an expectation that volunteer fire fighters provided a first response to patients in the absence of any medical assistance. This was whilst waiting for ambulance arrival, but at the same time the fire fighters had little training to be able to manage this care effectively. This participant states: "lack of training, they [fire volunteers] have got no training, they get activated by us, well-meaning people with no skills" (D4, paramedic).

Paramedics too, expressed a frustration at not knowing how some other professionals work. There may be good-natured intentions by some paramedics to

assist within a hospital situation, but this interaction is difficult with only fledgling knowledge around these other settings. Paramedic (B2) notes on a situation where he was assisting in care at a local medical clinic, but not included in explanations of care given by other medical staff:

> *The other thing about interacting, you can feel stupid. Invariably if you are working with one or two other teams, they do something you don't, and you wonder if you were supposed to. I don't know what that test is they are talking about … sometimes it can make you feel like you don't know anything* (B2, paramedic).

Knowing other professionals, and the roles they perform, relates directly to positive patient care experiences and helps set up an environment conducive to interprofessional working. In one such example, a retired ambulance paramedic continued in a volunteer capacity as a member of the State Emergency Service (SES). His respect and knowledge gained as a paramedic enhanced care from an SES perspective.

> *Has retired from ambulance but he is very active with SES. He is a bit of a conduit* [between the SES and ambulance] *… interaction between ambulance and SES people* (B1, paramedic).

In another example of knowing the roles of others, a paramedic who called on the assistance of a police officer he knew personally, was able to use this knowledge to assist in pre-hospital care. The paramedic knew the police officer was not familiar with some equipment but was aware the officer was more than capable of providing physical support and was able to engage this support in the provision of patient care.

> *Had no volunteer, police came because I knew the cop. They came to help out. Only draw backs, not familiar with the scoop* [stretcher], *but they* [police] *are muscle* (D4, paramedic).

Sometimes there is a need to actively promote skills and knowledge so that other professionals can understand roles. At the beginning of the extended care paramedic program, the ECPs noted their own profession was not initially widely

known, and a process of active cooperation was a means by which others can learn about and utilise their experience.

> *I do not think that the ECP field is widely known …* [in the] *wider health community … allied health, physiotherapists or radiologists, pharmacists are all included. I just don't think they know* [about us] (H1, paramedic).

Following the establishment of the ECP program there was a deliberate attempt to set up education sessions with different medical professionals to provide information about the program; including how it can be utilised for the benefit of patient care. Program organisers and ECPs travelled to various medical clinics and health groups in both rural and urban areas to educate other professionals on the capabilities of this new form of paramedic care. Because of these information sessions, extended care paramedics could confidently approach other professionals in both urban and rural settings. Below, an extended care paramedic (H1) notes coordination between the paramedic, social workers, translator and pharmacist.

> *Went to the Migrant Resource Centre, have got some social workers and things up there, translator and a case worker … took them to the pharmacy … appropriate medication* (H1, paramedic).

Paramedic (H1) also comments on arranging community nursing services for a post-surgery patient. Earlier education sessions and contact with the community nurses meant the latter were aware of the ECP's role and were happy to accept referrals from ECPs.

> *Community staff they have always been willing to talk* [to the ECP], *it wasn't anything special about that but sort of ... basically, it was about trying to organise some care for this lady post-surgery. The community nurses were more than happy to see the ECP role is involved* (H1, paramedic).

Once other professions had learned about the role of the extended care paramedic, they were more than willing to participate in joint care on a greater level with the paramedic. This was something one ECP even noted was more effective than with other 'general' urban based paramedics.

> *The community nurse was there. Spoke to her about one of the residents there* [nursing home]. *I wanted to speak to her … introduced myself as the ECP. She opened up and was just willing to talk about things. I haven't struck that on a normal on road ambulance* (H1, paramedic).

To reinforce this, a nurse (H3) experienced with the ECP program comments on how nurses had learnt from the ECPs, and that this was greater than that normally experienced from conventional paramedics, with ECPs also more willing to discuss joint means by which to approach patient care.

> *All of that stuff we have learnt from you. You guys* [paramedics] *go way over and above what we thought ambulance did. More willing to talk to us about clients* (H3, nurse).

Importantly, knowledge of the roles of others is essential in creating an acceptance of different professional capabilities. As the following example shows, before they had knowledge of the roles of ECPs, pharmacists would query why a paramedic would ask for advice on medication management, rather than simply transport a patient to hospital:

> *I just don't think they know* [our roles] *… was a surprise to both pharmacists* [that] *an ambulance was ringing up to leave someone at home. It is anecdotal, from the pharmacists was, why are you doing that for, why don't you just pick them up and take them to hospital* (H1, paramedic).

As an alternative, the following response by extended care paramedic (H1) demonstrates how one nursing home initially requested that all patients would require transport to hospital when needing advanced wound care, such as suturing. Following exposure to, and learning the complexities of new roles, staff at the same location were happy to allow ECP care at the nursing home, thus avoiding unnecessary transfers.

> *Next time we went back we had a similar situation and I actually got to suture this lady's head and leave her at home with a note from the GP.*

Had a discussion after we left and had some leniency, staff were more lenient with the policy (H1, paramedic).

To acknowledge other professions in part set the foundations for interprofessional learning, but the process of interprofessional learning requires more than acknowledgement alone; the ability to value the experience of others is paramount. Having dual qualifications is a direct form of this. For example, one paramedic (F1) who previously worked as a community nurse, felt that her previous experience enhanced her ability to liaise effectively with other professionals.

For ten years I worked as a community nurse in a rural area, volunteers and police and hospital, and so you have to work with everyone … a wound care person, you were everyone … you had to liaise … occupational therapists, you would liaise with them in town … you got the local builder to organise putting the rails on, might speak with veterans affairs to get funding for it. So, you coordinated all of that. I suppose I am used to working with lots of people (F1, paramedic).

Previous qualifications are not a requirement for successful interprofessional collaboration, but the example given by paramedic (F1) is in direct contradiction to evidence of 'protecting turf' (discussed in Section 6.4.1) where there was refusal to accept prior qualifications as being beneficial to paramedic practice. Where nurses trained as an ambulance volunteers, rather than restrict their practice based on the level of ambulance training, there was acceptance and recognition of their nursing skills.

I knew how to set up infusions and stuff they [other volunteers] *were very grateful for my help … I suppose it the same everywhere, where … people know what your background is … anyway that is something interesting* (G1, ambulance volunteer).

The idea here is clearly not to promote one profession over another; rather, to value the contribution to overall professional knowledge gained and recognise individual specialties. Such is the example where paramedic (F2) describes work with a radiographer and doctor to provide care for a patient who had a leg fracture:

I prompted it. The doctor still needs to sign it and everything. There was some discussion. I suppose if you are going to look after these patients professionally you will refer them. It is more professional. I reckon it did because they do traction the leg and they put a back slab on it. Doctor came, I actually placed traction on the leg and he put a back slab on it. It was probably a good thing to do rather than just leave it. Relieves pain, prevents further injury. They [radiologist and doctor] *agreed with it. They agreed it was a good suggestion* (F2, paramedic).

The valuing of professional specialties in this way demonstrates that gaining knowledge around and understanding the roles of others is more than simply learning about each other; colleagues are interdependent in the provision of care. No one profession was more important, with diversity in care treated as a learning experience.

The training experience in the ECP program is one such example, where the placement of these paramedics with various other professionals led to a bilateral awareness of roles and sharing of information. As the responses below show, extended care paramedics became aware of how to utilise services such as aged care assessment, community nursing and palliative care.

Very beneficial, to know that service [aged care team] *was available, Even just to ring them up and discuss patients … to talk to someone who knows about that sort of stuff was good* (H1, paramedic).

Spent a day with community nursing. Community nursing are out there doing it in the street. Like the ambos do. The community nurses do it as we do, in their environment. From that perspective, it was good. How they manage the issues about layouts, about homes, and sterile field, all that sort of stuff. So, it was good. Two-way information stuff, what are you doing why are you doing this, how can we help you, or vice versa (H1, paramedic).

Palliative care. It was good I learned heaps from them. Palliative care doctors and the current regime of doctors and how they managed

palliative care. A shame we didn't get more involved with them (H1, paramedic).

This awareness extended beyond formal training and translated to an upkeep of skills. Mutual learning with distinct benefits would occur in both directions between paramedics and other health care practitioners. In one example, a nurse participant described how an experienced paramedic could willingly pass on knowledge and skills, with a reciprocal willingness on the part of nurse to receive this learning experience.

When the education is happening, [paramedic] *has been taking the lead. His knowledge and skills. I can't really pick out what makes it work … willingness to want to share knowledge, willingness for the nurses to be ready to receive* (D2, nurse).

Rather than being isolated incidents, there were reports of rural paramedics being actively involved in education sessions in similar episodes across several sites.

Really good at teaching us how to set it up so it can go straight into our syringe driver. Good at teaching us. Only the doctors and paramedics can do that. Really good with that sort of thing (F3, nurse).

If we included them [volunteers] *like when we have guys like 'Chris'* [nurse educator], *if they could refresh with that kind of stuff with us…people communicate a bit more, perhaps we will build better relationships* (A3, nurse).

Illustrating the effectiveness of such shared knowledge is the following response from one paramedic, concerning previous training between the paramedic and local doctors that gave the doctors awareness of paramedic drugs and clinical practice guidelines.

Call out the doctor to come and assist. Doctor has been able to come, using our gear, has been able to intubate, and using our drugs. Having this good working relationship with them it tends to work quite well. That was really nice, showed the benefit of having that up skilling from our end (E1, paramedic).

This sharing of knowledge provided evidence of interprofessional learning, but interdependence extended further into the clinical environment, becoming an essential element of interprofessional interaction. In rural hospitals, limited numbers of medical staff were available, and although not part of the pre-hospital setting, paramedics offered extra assistance when required.

> *I understand that it is harder for them* [rural hospital] *to manage patients, they don't have the resources ... we are there to support them if the patients need to get going, they need to be in a bigger hospital where they can be observed in case anything ... I sort of come and do stuff ... I always get invited or ask if they want some assistance. I never go in there and say I'm going to suture someone up or something like that* (F2, paramedic).

> *We needed staff ... weren't really sure what* he [patient] *was and he walked in on me telling me he had been sick for 2 days. Doesn't look after himself. I got orders from the doctor and he told me what to do… Called another doctor in, then the ambulance arrived, he ended up being jumped on and resuscitated and tubed and everything. Ambulance were a good help* (F3, nurse).

Sometimes, as noted by nurse (F3) below, the utilisation of interprofessional teams, including paramedics, is due to the reduced availability of medical staff.

> *They will do it in the hospital if they can. One of the ambos might "happen" to walk through and we go ... they do bend the rules a bit out in the rural bit. There is only one doctor. They will call the ambulance. Just for back up* (F3, nurse).

Such statements are supported by some memos recorded during this study. In one hospital in an area of this study, nurses and GPs were willing to call paramedics for assistance and respected the judgement of those paramedics. One doctor asked for opinion on a piece of medical equipment (a twelve-lead electrocardiogram) and both nurses and doctors asked paramedics to assist with difficult cannulations (Memo 3, observation at site D hospital).

This professional interdependence in the rural context is more than an *ad hoc* solution for limited staffing; a strong message of mutual reassurance is present. As observed by paramedic (E1) below, members of clinical teams noted a sense of grounding and security gained from referring to others for difficult clinical decisions. These were not teams whereby professionals simply worked side by side, but participated as colleagues engaging in interprofessional interaction.

> *Nurses asked if I could come back in.* [I was] *confronted by this slightly panicked doctor, kind of just say, well let's stop for a moment and re-assess ...* [patient is] *breathing again so you could probably stop that altogether and go back to an oxygen mask. We had a chat, she* [doctor] *was the first one to say look I have just done my emergency refresher, all that went out the window ... she was very appreciative of that teamwork, working together on the patient* (E1, paramedic).

The doctor (D3) of this study reinforces the reassuring effect of working interdependently with team members, with their response below. This sentiment is further linked to training in the subsequent response from nurse participant (F3).

> *Paramedic showed up quickly, took over the neck stabilisation on him, more of the relationship they were working with him ... it was more we will keep the guy calm ... that is something I have noticed … not just the medical aspect of it* (D3, doctor).

> *The paramedics, they will organise the retrieval team, that sort of stuff. The retrievals got to come down on the plane and they* [paramedics] *put in all the extra lines and stuff like that … They are a lot more calm, I am a bit more will you just get on with it! They are being all cool calm and collected. Really good at teaching us how to set it up so it can go straight into our syringe driver, good at teaching us. Only the doctors and paramedics can do that. Really good with that sort of thing* (F3, nurse).

Of course, the question is raised as to whether members of such teams could have felt threatened by 'others' closing in on professional boundaries; but rather than being threatening, shared knowledge between professionals has the effect whereby different personnel not only work together but felt able to effectively administer care

within distinct roles. At the scene of a road accident, an ambulance paramedic for example, may have assisted with a rescue of a patient from a vehicle, or with coordination of other resources. Rather than seen as crossing boundaries, this is an essential part to management of pre-hospital care in these locations:

> *The RNs were a bit busy, expected the man to be dead so they were quite happy* [he was not]. *They* [volunteers] *also managed the traffic, and also the helicopter, quite a big job if you like. There were a lot of aspects to it. I think they also may have managed the traffic and they certainly helped clean up. A lot of them wear two or three hats* (G1, volunteer).

The key is these extensions of practice came back to mutually assisting other professionals in performance of their own roles, rather than being a takeover. Different professions working together in effective interprofessional relationships, not only absorbing information gleaned from contact with other professionals but demonstrating the ability to know how and where to put this knowledge into practice. As the following two responses show, this can involve teamwork established to prepare critically ill patients for ongoing medical retrieval by air ambulance. The care offered by paramedics assists other professionals in the effective preparation of these patients:

> *There are only two of us on and the doctor comes in but you still need more staff … the paramedics, they will organise the retrieval team, that sort of stuff. The retrievals got to come down on the pane and they(paramedics) put in all the extra lines and stuff like that* (F3, nurse).

> *Approaching the case. Just basic stuff. A patient they* [hospital] *were going to retrieve, he was intubated, a cardiac arrest. I opened up the curtain and they were doing CPR. I thought, oh shit, what is going on here! Said can I help. They said yes!! I said can I just come up to the head and I will just start from the top and I will do well… does he have an airway, no, is he breathing, no, has he got a pulse, no. So, I will look after the airway, keep doing CPR, I will get the monitor on. So just a very simple approach* (F2, paramedic).

Alternatively, paramedics can assist in the hospital environment when other staff members are unavailable.

> *Nurses couldn't instigate fluid, they called the doctor, he was 20 mins away. Couldn't instigate fluid, drugs. I am able to so, got fluid running, dressed his* [patient's] *hand, worked as a team and sorted him out by the time the doctor got there … I was able to help. The hospital staff is very good. They don't seem to take offence, someone walking in and taking a leadership role* (D2, paramedic).

One of the benefits of working together in interprofessional teams is that such relationships allow movement within different spheres of care. This encourages drawing on the expertise of a wide range of professional knowledge. Previous discussion in Section 2.5 for example (refer pp. 59-62), reveals enabling of paramedics to work in community-based health care such as general medical practices (Cooper & Grant, 2009), providing fall prevention services, wound care and health care referrals in conjunction with other medical professionals (O'Meara, Ruest, & Martin, 2015; O'Meara, Ruest, & Stirling, 2014; O'Meara *et al*., 2018), or involvement in collaborative home-based assessment and care for elderly adults (Shah *et al.*, 2010).

The evidence from extended care paramedics particularly helps to convey this concept. In one interview (H1, paramedic), multiple professionals were utilised to provide an effective outcome to patient care. The patient was non-English speaking, pregnant and had presented with nausea and vomiting. Due to language difficulties, full diagnosis was difficult. The paramedic contacted an interpreter service though a local Migrant Resource Centre, as well as a caseworker who already had knowledge of the family concerned. This actioned an appropriate course of treatment, and the paramedic determined that the patient required an anti-emetic. The paramedic then communicated with a pharmacist and arranged for medication and further instruction for the family *via* an interpreter service. During this collaboration, the ECP also discovered an existing prescription for medication, and also that the family did not know how to fill the script. Part of the successful management was for the paramedic to also seek a face-to-face communication with the pharmacist to help

sort out any ongoing issues with dispensing medication, then inform the pharmacist of the migrant resources utilised by the paramedic.

The assistance provided as a result of this interprofessional collaboration is holistic in nature and extends beyond medical care. Social aspects are part of interprofessional work, and paramedics can incorporate other professions (as well as family members) to help achieve the best outcome for the patient concerned. As an example of this, paramedic (F1, paramedic) comments that she attended a patient with high blood pressure and some other more chronic problems. Of greater concern though were 'issues' in the home environment that may have effected routine activities of normal living. Following transport to hospital, the paramedic made a point of visiting the community nurse at the hospital the next day, to raise these issues with the nurse and to arrange home visits for further care and assessment. Had this interaction not taken place, the patient most likely would not have mentioned such issues.

Paramedic (F1) also says how collaboration with local hospital staff is of benefit in similar situations. In one case, a patient presented with a mild chest infection. Previously, the patient required transport over 200km to a major hospital and was reluctant to seek further medical treatment due to the difficulties of relatives visiting, transport home when recovered, and the overall cost of transport and accommodation. With the patient's reluctance to seek treatment in mind, the paramedic consulted with the doctor and local hospital staff to arrange local admission and treatment. This then had the impact of the patient agreeing to medical care in the immediate instance, rather than risk a worsening condition.

> *... so, we ended up doing a whole heap of swapping and changing so he could go to* [local hospital] *and stay with the ex-wife and, it was a very complicated thing, but in the country you do need to think about transport and stuff. It would be worthwhile for paramedic students to realise you can't say oh yeah, they need to go to hospital. Maybe people haven't got the money or haven't got friends that could come an hour into town* (F1, paramedic).

These social aspects of care appear across several sites and also involved an emergency care component. In another instance, two critical patients were present at a local hospital. Both patients required urgent transfer with only one ambulance available. One patient had experienced a traumatic head injury; the other a stroke. The patient with the stroke had previously had similar episodes and his family was present at the hospital. The paramedics consulted with the doctor and decided to transport the head-injured patient first. In making their decision they sat down with the family and doctor and explained the decision and rationale. This involvement of all parties helped to alleviate any concerns: “It was good medically, it was great medically … was (also) well done socially” (D3, doctor).

6.3.2 Communication

The example of care in the preceding paragraph demonstrates the importance of effective communication between health care colleagues. This introduces the second category of the theme of cooperation, that of *communication*. The understanding of other professions, as well as the value of interdependence, is important to the process of interprofessional learning, and an inextricable link with the ability of professionals to convey and receive effective messages around common care experiences. A well-founded working knowledge of other professions is something that develops while in the working environment, but only when effective communication occurs.

Such a notion had come up, in part, from a training perspective, with some areas perceived as onerous in the conveyance of messages. Similarly, from a pre-hospital care point of view, complexity in a communication sense did not necessarily relate to effective interprofessional relations. Indeed, some participants suggest complex communication is being detrimental to effective working: “less effective aspects … over communication, double up of information, not sending vital stuff … just crap basically” (D4, paramedic).

Sometimes the skill to convey instructions or communicate at a basic level is more effective than trying to maintain an appearance of professional elitism through the use of overcomplicated language and instructions. During a particularly stressful in-hospital clinical episode, one paramedic observes medical staff were having difficulty with patient management. As an offer of assistance, the paramedic

managed to calm the situation by bringing everyone back to basics, and breaking care management down to individual and simple-to-understand steps of airway, breathing and circulation control:

> *They didn't want the doctor, just the nurse and asked if I could help … getting back to basics. The patient was ok with airway, breathing circulation, they were talking so that was good … what they were doing was not going so well so I made a suggestion … and then they did that and they managed the care part* (F2, paramedic).

The ability to relay messages around patient care, such as consultation with a patient's medical practitioner, or in handover of care to medical staff at a hospital, is part of normal paramedic working. However, there is also an element that had developed in conjunction with an interprofessional learning experience. In the ECP role, for example, dealings with pharmacists, palliative care doctors or community nurses show that the ECPs had been able to relay their role of extended care, whilst at the same time learning a great deal about the roles and capabilities of others in the pre-hospital situation.

Critically important in such a process is the feedback, both given and received, by different professionals in the learning process. Some of the participants in this study went to the extent to state that feedback around patient care, is possibly more common in rural areas. One example is a comment by a nurse (H3, nurse) who had contact with the extended care paramedic program. Her past opinion of ambulance was limited contact with urban paramedics. Normal urban paramedic response incorporated little patient care feedback to aged care liaison teams, and she was surprised by the willingness of members of this different model of paramedic practice to communicate directly with other professionals. The consequence is that all members of the extended care team are aware of aspects relating to individual patients. No longer is the frail elderly patient suffering continued falls at home, simply placed back to bed or in a comfortable chair; his/her falls are now referred to the aged care team along with any difficulties that person may experience with activities of daily living. The team can then refer to occupational therapists or community nurses to conduct further assessment.

He [ECP] *will say I am worried about someone, wouldn't have happened before unless we started this relationship. It is nice. Didn't happen before the relationship. So, that is positive* (H3, nurse).

Feedback around patient care was a two-way process, either initiated by one person as in the case of the ECPs, or involving multiple professionals, as often appeared in formal debriefs, for example:

The other thing that happens on the island if there is something like that either 'Ian' or 'Jess' [nurses] *will often call for a debrief, a team debrief. Which is quite good* (G1, ambulance volunteer).

Or, as in the example below, while actively attending to patients in the pre-hospital setting:

The particular SES [State Emergency Service] *people were I thought really good communicators, particularly one who I think was a team leader … for a group of volunteers I thought they were absolutely stunning…getting the fellow out it was a lot of talk between … 2 or 3 SES guys on one side of the car and the ambo* [paramedic] *fellow on the other and there was a lot of talk between them on how to get him out* (G1, ambulance volunteer).

One positive consequence of effective communication and feedback between professionals is the ability to break down potential barriers. Adopting a mature approach is a way of reaching an effective learning outcome. The doctor in the following example states how paramedics would often give feedback around a patient. He would sometimes disagree but would investigate further. Both would then come back, discuss the care given, and reach a consensus:

Bounce things off one another … don't know whether I really agree with it, then he [paramedic] *tells me why. I will do some research on that, we both research and come back. Yeah, we agree, we agree to disagree with what [hospital] is saying, bounce things of each other all the time* (D3, doctor).

In saying this, however, feedback at times can face unintended interpretation. In the following example, an ambulance volunteer (G2) comments on what could have been interpreted by some as a rather abrupt exchange with a paramedic. The paramedic mentions equipment strewn in a disorganised fashion:

> *Just nonchalantly walk out of the helicopter. How dare they come and tell us we have got stuff everywhere* [laughter]*! One of the paramedics said 'hmmmm you have got a bit of stuff all over there!'* [laughter], *there was stuff (strewn all over) there … That was the tail of the helicopter did that!!* [jokingly] (G2, ambulance volunteer).

The actual intention of this exchange was not malicious, but was in fact just banter with no insult intended. It would be easy to interpret this use of 'black humour' as a negative form of feedback, yet this shows that to be effective in an interprofessional relationship, messages need clarity, delivery on a positive level and to have a purpose. Feedback has little merit in an interprofessional learning process unless professionals in patient care adopt effective listening around the intended messages.

This concept leads back to the overarching theme in this section, that of cooperation, and links back to the first theme of relationships. The suggestion is that without a process of cooperative relationships, interprofessional learning is difficult to progress. The next section takes this further by discussing the third theme from findings, that of *operational barriers*.

6.4 Operational Barriers

The first two themes of relationships, and cooperation are means by which to promote and enhance interprofessional learning. Conversely, there are concepts that hamper an interprofessional setting. Findings of operational barriers identify contextual features with which professionals can work and which can restrict interprofessional interaction. This section discusses two concepts relating to the third theme of operational barriers that impact on the ability of pre-hospital colleagues to interact in an interprofessional manner. These areas are:

- ‘protecting turf’, where some professionals wishing to collaborate find themselves restricted from equal participation; and
- workplace culture, where aspects such as hierarchy or gender obstruct team interaction.

6.4.1 ‘Protecting turf’

The promotion of paramedic care, or indeed any health care field, as a profession with individual speciality, should not be an obstruction to interprofessional relations. However, findings from this study indicate a distinct tendency to maintain operational distance in the creation of professional boundaries. The category of ‘protecting turf’ in this study is explained as one group establishing boundaries by which to exclude full participation or joint decision making by another group. The design of this study provides the opportunity to examine different models of rural paramedic practice, with different types of care provider, and boundaries are especially evident when non-paramedics are associated with pre-hospital care. This includes ambulance volunteer staff who had prior medical training, and nurses employed at one local hospital to provide pre-hospital care. Each worked alongside paramedics in the provision of care, but each faced some distancing from paramedics in this care.

At a most fundamental level, the language used in paramedic care can appear as an operational barrier, ‘protecting turf’ of paramedicine and establish paramedics as members of a unique health profession. Implications of this appear in findings concerning ambulance volunteer training, even when other health professionals choose to undertake this training. One volunteer offers the following statement to this effect:

> *Lawyers have their language, medicos have their language, it is exclusive language and I think abbreviations should almost be got rid of. I mean there were abbreviations and I thought I don’t know what that is* (G1, ambulance volunteer).

The volunteer who made this statement is doing so as an ambulance volunteer, and as an experienced general nurse. Her view is that from her perspective as a nurse, this exclusivity of language serves to build the paramedic profession as

something independent of other health professions. Perhaps a non-medically trained person in a comparable situation would not have noticed and, in isolation, this exclusivity of language is a benign example that the profession is 'different'. In one sense, this can be a positive thing, with volunteer training aimed at inviting newcomers as members of this 'separate profession'. However, ambulance volunteer G1, in her comment below, further qualifies her statement by noting that use of such language, with no explanatory context, results in an overcomplicated training environment, confusing participants undertaking ambulance volunteer training. Rather than an invitation, this serves as a delineation; setting 'real' paramedics aside from 'volunteers'. Such activity also establishes a background against which paramedics can be seen as separate to other health care colleagues when attempting to promote a setting for interprofessional learning to take place.

> *I am thick or something, have I missed something? It wasn't onerous … what we were being taught wasn't onerous. It didn't have a context. I thought if you didn't have a background, if you didn't have any idea of the language, you would struggle* (G1, ambulance volunteer).

The creation of professional boundaries became more apparent when considering that, apart from unique language, ambulance volunteer training extends to overt restrictions placed on previously experienced medical personnel. Little merit accompanies prior experience and qualifications when training for or working in the capacity of an ambulance volunteer. This is especially pertinent in one model of care, where nursing staff from a local hospital operate from the hospital in place of paramedics but receive no credit for previous experience from the ambulance service itself. As one nurse participant explains:

> *Able to communicate…not treat you like a moron … acknowledgement of prior learning, of experience.* [Training] *only addressing the VAO* [volunteer] *protocols … nothing for RNs … can't even give your GTN with an aspirin, stuff like that … just not allowing that little bit of definition saying that … I have got to follow my protocols, but I am also a registered nurse* (C1, nurse).

The nurse who offers this comment strongly expresses her opinion, partly from other personal experience. Her partner is a qualified paramedic from another state in Australia, and as a paramedic he had faced restriction when joining the service in Tasmania (due to differing professional guidelines in each state). Reinforcing this participant's views were similar sentiments from another participant (G1, ambulance volunteer) regarding the lack of consideration given to prior knowledge and experience. This ambulance volunteer (who was also a nurse) says that during volunteer training all participants are "assumed to be starting at zero" (G1, ambulance volunteer), regardless of prior experience or qualification.

This sort of baseline fails to embrace a diverse range of medical knowledge in helping expand a learning experience. This situation of all 'starting at zero' is of course ironic. One registered nurse (RN) comments that in a hospital environment she can give direction to an enrolled nurse; however, when both qualified as ambulance volunteers (the enrolled nurse the first to do so) the roles reversed. Despite differing external qualifications, as ambulance volunteers, the enrolled nurse was initially in charge. As the RN explains:

> *I* [registered nurse] *know how to take a* [expletive] *blood pressure!* [laughs]. *She is an EN* [enrolled nurse], *and I would have found it good because I had gone out with her she would have had to tell me what to do not the other way around. Like in hospital I tell her what to do!* (F3, nurse).

Fortunately, both could see some humour in this situation, but the episode still left the registered nurse with doubts about the restrictive nature of such distancing from prior experience.

> *Are you allowed to do that as a level 1* [volunteer]*? ... Can someone put the oxygen on for me then please!* [Laughs] *I hadn't quite learned my boundaries* (F3, nurse).

Of note in the above response, is that the registered nurse (F3) mentions "my boundaries". The creation of operational rules around the participation of those with previous medical experience in ambulance volunteer training maintains a distance

between paramedics and other professions. This protection of paramedic 'turf' creates noticeable operational boundaries for these 'other' professionals.

No profession seems immune to this restriction of qualification by the ambulance service. In one example, a doctor had expressed a desire to help his local community by participating as an ambulance volunteer. Even this medical practitioner was bound by the requirements of having to undertake a complete ambulance volunteer course.

> *We have even had a doctor who wanted to do 1 weekend in six…after consultation we have had to say, no … there is no RPL* [recognition of prior learning] *with ambulance Tasmania. Would have to work under the ambulance VAO protocols. Well that is an insult to someone who is a surgeon!* (G2, ambulance volunteer).

The implied result of this episode is the loss of this potentially valuable ambulance practitioner, in the field of pre-hospital care, from the local community. In-field memos document similar episodes where nurses and doctors wished to assist local communities, but could not do so in the capacity as ambulance volunteer without completing a formal volunteer program.

> *A drop off in ambulance volunteer recruitment and retention seems present within the state. Several nurses have expressed a desire to become volunteers in the local area but have been put off by the onerous and time-consuming training requirements with no consideration toward prior learning* (Memo 13, State of volunteer training).

The effect of such distancing not only impacts local communities, but also blocks a contribution of knowledge and skills between ambulance and other health professions at the volunteer level of care. Operational rules serve to 'protect turf' of paramedic practice, while hindering interprofessional interaction between different health care colleagues.

Largely, these restrictions to recognition of prior knowledge and promotion of a unique profession are due to established policy and guidelines within the ambulance service. The curriculum of ambulance volunteer training and recognition

of past knowledge are under organisational control. Although relevant to ambulance volunteers, the distancing of other medical professionals in such activities clearly indicates a resistance to interprofessional acceptance. This form of limitation extends beyond the training environment, and participants reveal that restrictions to how professions can practice and interact in the pre-hospital situation were not unique to the ambulance service, nor to volunteer staff. This further serves to present operational barriers, which restrict the ways in which professionals interact in a process of interprofessional learning.

Policy and guidelines generally exist as a form of governance to ensure safe and professional delivery of patient care; however, this type of control is at times perceived as having little consideration of 'local' working relationships, with the observation being that those in organisational control could be out of touch with the management of pre-hospital care. As the ambulance volunteer (G2) suggests below, solutions for ambulance practice can address locally-based needs, but this would be overridden by overarching operational control.

> *When someone comes in and says no, we can't do it that way, we have to adhere to policies and procedures. As far as the government is concerned and officialdom is concerned, we have got to be the same as everybody else* (G2, ambulance volunteer).

The isolation of some rural areas of this study presents a unique insight to 'local' peculiarities. The examples where various medical staff wish to participate as ambulance volunteers extend to where some would also offer their services, regardless of their interest in ambulance volunteer training. This, however, poses difficulties for hospital staff in the pre-hospital environment. Some nursing staff, for example, express the desire to assist paramedics outside the hospital setting, but were restricted in doing so by protocol and policy of their hospital environment. Such assistance could be in the form of attending a known incident to assist ambulance volunteer personnel or, as in the following response, aid ambulance volunteers during transfer from one facility to another:

> *It is outside my scope of practice to transport … our director of nursing will not allow us to transfer. We could go with the ambulance administer*

morphine or whatever, I can't step outside of the doors of the hospital. I hate that part of working over there! I feel very limited (A3, nurse).

Of course, policy and protocol are not the only barrier in this regard, as the operational resources of a local hospital may also prevent such action. A participant from one site, however, says such rules extend to medical staff when out of hours. One policy even prevents staff from applying as ambulance volunteers, and offering their services in an "after hours" capacity (A3, nurse). In this case, operational policy is a reversal of 'protecting turf', as seen with paramedic practice. Hospital policy, rather than ambulance policy, is used to restrict interaction between pre-hospital and hospital-based providers of health care.

Moving from local rules to more general concepts, the use of policy to restrict interprofessional cooperation extends from hospital staff to paramedics. An example of this is from the extended care paramedic program during the initial stages of development. A large amount of liaison (on behalf of joint education and management personnel) operated within the limitations of policy and 'red tape' in order that paramedics can participate in hospital-based training.

The first bit of that, just the negotiation on getting that [ECP] *project together was very positive and I think that … and it wasn't frustrating, it was very straight forward ... a great process, it showed how it can happen with good networks, and getting down barriers. So, there wasn't sort of red tape in the way. We actually could work it out between ourselves. Which means it was quite easy and it wasn't a lot of mucking around to make it happen … even though we had a lot of extra players from our side* [laughs] *involved! In making that happen. I think the good communication between us, on my level and your level, made that not actually be a burden. We worked through those issues that presented from our side. We didn't let them get in the way* (H3, nurse).

From a different perspective on patient care, ambulance volunteer (G1), recounts a "no chair policy" in one major urban hospital. The intention of this policy is to avoid clogging of passageways with relatives or others sitting beside patients on ambulance or hospital beds. In this case, a stepmother and daughter were both taken

to the hospital after experiencing injuries from a motor vehicle accident. The ambulance crew endeavoured to keep the two together, as the daughter could sit on a chair next to the mother. Due to the "no chair policy", G1 observes increased stress for both the stepmother and daughter:

> *So here we are, and then we go to the* [urban hospital] *and they have this 'no chair' policy and I had the mother on the stretcher and the paramedics in doing the paperwork, and there is this little girl who is vomiting so I went and got a chair and because the* [urban hospital], *because as I said, has this no chair policy, you know they give you bit of a funny look sometimes because there is a sign there saying there are no chairs in here, and I am saying I have got a little girls who is sick, She can't go anywhere … there is no legal guardian, this is the stepmother, I can't put her on the trolley* (G1, ambulance volunteer).

There must be some care taken in concluding this obstruction to care was purely policy-related; it could also be connected with to personal interpretation in the application of such policy.

Policy and procedure influence the development of treatment guidelines, but a lack of clarity between professions regarding some operational guidelines also leads to confusion about what may constitute effective patient management. Several instances arose where nurses responded as part of an ambulance crew; but as their training was to the level of ambulance volunteer, they faced restrictions in their patient care management. Ambulance volunteer management of pain relief for example is very limited when compared with that of a registered nurse. Some nurses had worked around this problem by consulting with local doctors based at the hospital. Nurse (C1) comments: "I rang [the doctor] and I said I think we need some Midazolam otherwise we are not going to contain him [the patient] in the vehicle".

However, such decision-making (despite support by the doctors) had no reciprocal support by the ambulance service as an organisation. The nurse participant comments that she had to "make a point to have a doctor's order, otherwise I will find myself in trouble" (C1, nurse). Conversely, on handing over the same patient to paramedic crews whilst on route to the hospital, some degree of local

interprofessional support emerged, with paramedics accepting of treatment given by nurses who operated outside ambulance volunteer guidelines.

Sometimes there is a blurring of guidelines on an intra-professional basis. Ambulance volunteer (B5), for example, talks of a patient suffering from a snakebite injury. The initial crew had treated this injury with what they had deemed appropriate management. On handover to a paramedic crew, the new personnel treated the woman by walking her to their ambulance stretcher. This was a contraindication to treatment of snakebite. This event occurred between various levels of ambulance qualification; the initial crew were volunteers, the secondary crew paramedics. What eventuated was confusion on behalf of the initial treating volunteer crew around patient care guidelines, on an intra-professional basis.

> *We had a lady with a snake bite … and she was not unwell … she was well, and there was a query about the snake bit. But there was an issue about the paramedics … who came down from town wanted her to walk from the ambulance down to the boat* [for transport]. *Like having a snake bite on the leg, it seemed to us not … was that right?* (B5, ambulance volunteer).

Rather than being an isolated incident, this type of intra-professional conflict presents in other areas. The dispatch of helicopter support arose several times as a distinct source of frustration between communications staff and paramedic staff in the field. Use of aero-medical support is subject to strict guidelines due to both limited availability and cost. Request for use is to go *via* the communications department and would then be authorised by department management. One participant was quite vocal in expressing concern around the difficulties in managing critically ill patients in remote areas, and a perceived lack of respect for judgement of patient condition.

> *I told comms* [communication department] *before I went to maybe have the helicopter on standby, in the end they didn't … Managing the patient, looking after the volunteers trying to communicate with them, maybe they could just at times respect your judgement a little bit* (F2, paramedic).

Further memo evidence (related by an ambulance volunteer in another area and not part of this study) gives a similar account. The volunteer expresses that there was little trust when requesting helicopter support. The volunteer experienced refusal of helicopter assistance on one occasion, until an attending police officer confirmed the need for airlift. The patient had suffered a stroke and was overweight, both which had precluded extrication over remote and difficult terrain. Because of operational policy the volunteer was not capable of determining patient condition, but a police officer was! (Memo 5, comments from CB volunteer regarding use of helicopter).

Even when the helicopter arrived, sometimes intra-professional mistrust arose. Similarly, to the snake bite incident, an ambulance volunteer who had been on scene at a multi-casualty motor car accident assessed various patients prior to arrival of paramedics. He had the most serious patient prepared for helicopter transport. On arrival of the helicopter, there was little regard for his assessment and the helicopter paramedic, without explanation, transported a less serious patient, again leaving a volunteer colleague in a state of confusion around appropriate patient care.

> *That sort of thing, you know. It was* [names paramedic], *she says 'I will do my own assessment thanks', and there was another doctor turn up and I said well you can do it again if you like, there is a doctor, and by that time* [local doctor] *had turned up. This young guy is in the front of the car in and out of consciousness and they are trying to cut him out. The chopper came and the lady that was in the other car, basically got side swiped because she was sort of the third car, side swiped them, was in the car just sitting there. I think* [VAO nurse] *was sitting with her. So, guess who they put in the chopper? The lady sitting in the car* (G1, ambulance volunteer).

These episodes of care indicate a degree of misunderstanding, and lack of trust between some health care colleagues, even those within the same profession. To return to the notion of 'protecting turf' discussed in this section, boundaries between groups exclude full participation or joint decision making. In the snakebite example, perhaps the paramedics mis-understood, or were unaware of the volunteer ambulance officer' level of training. In the same respect, the immediate exclusion of the request for helicopter assistance could have been due to strict guidelines for

activation of helicopter response. This lack of clarity between professions is not unique to health professionals and occurs between different emergency services in the pre-hospital environment.

Services such as ambulance, fire or SES vary slightly in ways by which to conduct practice. This became particularly relevant where different responders wore several different 'hats'. An ambulance volunteer, for example, might also work for the fire service or SES. In such cases, the problem mainly presents on a non-clinical basis, being more like operational differences between services. As the following response suggests, on completion of a case for example, SES volunteers could not accept de-activation by the fire service, even if one of the fire officers was also a senior SES member:

> *Well, we got to resolve, for instance I have been in situations where we have been … at a road crash rescue and the fireys* [sic] *have said you can go now we have finished … but they are not allowed to stand us down, we have got to be stood down by firecomm* [fire communications] *in town. And they might have rung up and said we don't need the SES and we don't need that … well that doesn't matter. Even if they may be in the SES if they have got their fire uniform on, they can't stand us down…it's that sort of* [very expressive response] *… Yeah!* (B5, SES).

However, in stating these differences, just as there is some acceptance among paramedic personnel (for example, when several ambulance nurses went beyond volunteer guidelines) stepping between roles did occur between various emergency services. Fire and SES personnel with joint qualifications would swap roles if required. In one incident, a paramedic with road rescue qualifications was utilised to assist SES members in patient extrication. He explains:

> *And there is like a crossover between some volunteers who work with SES and decide to volunteer with ambulance Tassie. Well that has been very good. Yeah, so I can think of at least one car accident, a couple of young males travelling sort of in between … and … one of the people there had quite a significant evulsion to his arm and had taken a slab of*

muscle off as well. That was a matter of working with the SES for extrication and handing (B2, paramedic).

The individual swapping of roles and working around some of the rules associated with organisational operations suggests an influence on collaboration, not only at a macro level of organisational control, but also a micro level and controlled by the influence of individuals.

6.4.2 Workplace culture

The presence of both organisational and individual influences on collaboration towards a deeper cultural influence inherent in the ambulance workplace serves to introduce a second concept to the theme of operational barriers: *workplace culture*. Participants in this study reveal that certain differences inherent in professional working sometimes means that interprofessional collaboration is difficult to progress.

At a macro level is professional hierarchy. Within an organisation, such as an ambulance service, this may appear in the form of intensive care paramedics being operationally senior to paramedics, who are then senior to ambulance volunteers. Different qualifications also exist within nursing. Certainly, a hierarchy of care is in place to provide direction and promote effective care outcomes, but evidence from this study indicates sometimes those at a professional rank acted at a level of individual control, as a hindrance to interprofessional cooperation. Something subtler at this level, but equally influential, is the effect of gender on interprofessional work.

Some participants implied the presence of gender disparity. This simply appears as a means of describing how some differences may be present between male and female workers, such as in the conversation between these two volunteers:

I think quite a few of the men … I think if they are bit stroppy it stays at the incident … (G2, ambulance volunteer)

Yeah, yeah (G5, other, in agreement)

> *Men have a tendency to carry things over, they can sort of you know, have a yell or a swear at you and then it is gone* (G2, ambulance volunteer).

Usually, however, the findings indicate that gender disparity would manifest as a means by which some individuals choose to exert power. Most often this would be a case of male practitioners acting in a dominating manner toward their female colleagues. This differs from the aspect of gender discussed in Section 6.2.2, and its role in trusting relationships.

In one situation, a female participant (A1, ambulance volunteer) states that while still new to her ambulance volunteer role, she attended a case with a pregnant nurse and a more experienced male ambulance volunteer. Rather than acting in a responsible preceptor role, the experienced volunteer proceeded to terrify both women by intentionally displaying erratic and dangerous driving. The degree to which this episode distressed the participant is summed up when she says she, "opened the door and I fell out, in a bundle of tears" (A1, ambulance volunteer). Reporting of the incident to ambulance management only led to greater distress, as there was no further investigation, and no reprimand of the experienced male volunteer.

In yet another incident, again related to driving, a female participant undertaking ambulance driver training under the supervision of a male colleague received criticism for not driving fast enough. The language used demonstrates a degree of distress on behalf of this participant:

> *This other man* [paramedic], *he was like he had small man syndrome! 'You are not going fast enough; you are holding up the traffic!' And I said, "I don't know where to go', I was getting really scared* (F3, nurse).

Both males in these situations adopt an aggressive and intimidating attitude in order to establish an imbalance of power. Similar examples appear in comments from one male ambulance volunteer (C4, ambulance volunteer) noting the abrupt nature of different female paramedics toward colleagues.

> *We were getting a set of obs* [observations] *on him, and she* [paramedic] *looked at us and she said 'I'll talk to you later!'* [abrupt] *... Straight away I thought* [expletive] *it, we haven't got him on the bloody stretcher, we haven't got him totally immobilised, but like ... and we said to her, but she was not interested in listening to what was said, you know, what we had to say to her* (G1, ambulance volunteer).

In a separate example, the same volunteer comments on feeling threatened by an intimidating comment made by a female paramedic:

> *A negative episode was that one down the bottom of* [location not identified], *the paramedic jumped out of the bus, the last one on scene, you know,* [she demanded] *'put your safety vests on or you will be fired!!* (G1, ambulance volunteer).

It is unknown in these cases if the females concerned acted this way to both male and female colleagues, and so individual behaviour can be as much to blame as gender differences.

One type of scenario, however, tends to confirm the impact of gender, and the presence of male domination; when police attend as a back-up to paramedics at dangerous scenes. Comments from one nurse acting in a paramedic capacity are around attendance at a male patient in a potentially violent situation involving alcohol intoxication. Police attended the scene, however, stood outside the door chatting to male paramedic staff while the two female colleagues attended the patient.

> *It was me and* [another female volunteer], *we were women going into that scenario! And I would like a little bit more sort of 'remember that we were women going into that unsafe situation'* (C2, nurse/ambulance volunteer).

The participant interpretation of this episode as a display of power in gender relations, with the male participants exerting a *laissez-faire* attitude to the safety of their female colleagues. This certainly differs from comments made by male paramedics in similar situations:

> *Routinely, psych*[iatric] *patients up here. I get police attendance, it is a long way away, can be a long way away, can be in trouble for a long time on my own. I am surprised what people go to without police attendance. Without a crew member, I would not be going to this. I don't have problems. I won't go to a psych without police at least* (D4, paramedic).

> *Patient initially compliant, back pain and severely intoxicated of alcohol, car is smashed to buggery, has become not compliant, jumped out of the back of the ambulance. Running around the paddock barefoot, I talk him into the ambulance, and then a struggle ensued and they* [police] *have held him down, they held him down, kicking carrying on. Eighteen minutes for the Midazolam to calm him down, they* [police] *travelled with me, travelled with us for safety* (D4, paramedic).

The main point of such examples is that a degree of hierarchy between male and female colleagues is sometimes present as part of paramedic workplace culture. Often the presence of gender influence is subtler.

Section 6.2.2 discusses reciprocity and respect, and describes several episodes where female nursing staff called on paramedic assistance with difficult to manage patients. Although interpreted as a demonstration of how trust and respect could build between paramedics and nurses (where each could call on the other's assistance) a different interpretation could see female nurses relying on male support in dangerous situations.

Gender can therefore act as an operational barrier if interactions are not based on respect and reciprocity. Regardless of interpretation, one incident suggests that gender hierarchy can blur with professional hierarchy. One rural hospital had a male paramedic teach a local doctor intravenous cannulation, for fear he may be embarrassed if female nursing staff did this. Nurse participant (D2) states: "the RNs [registered nurses] can cannulate, but we didn't want him [doctor] to feel bad".

Regardless of any gender influence, part of paramedic workplace culture, and indeed health care in general, is presence of a hierarchy of rank. Throughout participant interviews are examples of officious ways in which collaboration

occurred (not due to hierarchy in gender but mainly due to these positions of rank). Common statements are:

> *… like all persons, sometimes you get good ones [paramedics] and sometimes you get bad ones* (C1, nurse), or,

> *… some of them* [paramedics]… *doesn't matter what you say it is not what they agree with* (C2, nurse).

The message is that some paramedics in positions of rank are overbearing in exerting their authority.

Paramedics, however, are not the only offenders in this regard and similar statements appear about some nursing staff and medical practitioners. One nurse observes how one of her colleagues disrespects ambulance volunteers. When those volunteers meet with others in the locally community in social situations, the impact of this disrespect soon spreads throughout the community:

> *There has not been a lot of love between a particular person [nurse] and the vollies* [volunteers]. *Massive negative impact, like a drop of poison. They go to the pub and they go to each other, pretty soon there is sour grapes throughout* (A3, nurse).

Some paramedics, as in the following response, find doctors can at times be difficult to work with if those doctors adopted a 'superior' professional stance.

> *Didn't find anyone who was particularly resistant except for maybe one of our own medical officers … a bit sticky about wanting to extend anything. Other medical officers were doing whatever was* ***required*** (H2, paramedic).

However, this observation is not unique to paramedics and the doctor participant of this study notes he had observed how paramedics would become frustrated with the attitude taken by one other doctor at the same hospital. He says there were, "some little issues with Dr [named], sometimes, [probably] just his training, paramedics get frustrated" (D3, doctor).

The power to negatively influence interprofessional relationships is evident in these behaviours. In the following example, there is little regard afforded an ambulance volunteer during handover of a patient and he is clearly not listened to by a doctor when attempting to explain the condition of a patient with a spinal injury.

> *The doctor came out to the corridor and said to me 'take the collar off him'* [abrupt], *before he cleared, before he had done anything.* [The patient] *ended up with a* [fractured] *vertebra. I said, 'your call doc'* (C3, ambulance volunteer).

The consequence of this episode is that the patient did have a spinal injury, but fortunately (possibly through good luck rather than good management) did not suffer further damage.

A potential effect of this type of behaviour is the ability of one professional to transfer this type of overbearing attitude to others of influence. Only one example of this appears in the responses. Here, several participants from the same site spoke of a nurse in charge as having a dismissive nature regarding ambulance personnel. An example of her ability to influence others is in relation to a multi-disciplinary exercise. Ambulance volunteers were unfairly (in their view) criticised by a local police officer, the implication being that the police officer formed his opinions under the influence of the manager concerned.

> *I was pretty upset because I thought he was undermining us. He's a nice guy but he obviously takes the bull by the horn. I think he had been stirred up by the director of nursing … she was actually on the field. I think she may have gone into overdrive. And had the impression the volunteers aren't very much* (A1, ambulance volunteer).

Regardless of who may have been the offending parties in such relations, such findings demonstrate that different forms of hierarchy are present in the workplace, and, if used to erect borders between different groups, could have significant inherent power to disrupt interprofessional relations. To close this section, this response from a nurse participant (A3) is highly pertinent:

> *She* [nurse] *didn't take the time* [to explain] ... *the* [volunteer] *questioned his role, whether or not he would continue. It wasn't very nice, it wasn't necessary* (A3, nurse).

In this case, an ambulance volunteer is criticised by a nurse in charge, concerning his care of a patient. The patient had received appropriate care but hospital and ambulance guidelines on this had differed slightly. Not only is this an example of the professional hierarchy of a nurse in charge over an ambulance volunteer, but also of 'protection of turf', where hospital and ambulance guidelines differed. This event resulted in the volunteer doubting his abilities and questioning his continuing role, although he is considerably experienced, and a respected professional involved in the training of other local ambulance volunteers. His potential loss due to such an episode could have been catastrophic for the local ambulance group and any ongoing interprofessional relationships.

6.5 Chapter summary

This chapter presents the findings in this study of interprofessional learning and paramedic practice. These findings demonstrate that interprofessional learning links with paramedic practice in a dynamic process, whereby relationships, cooperation and operational barriers can promote or restrict interprofessional learning. Each main theme is developed from episodes of collaboration where there was context around that incident, reflection took place and participants could identify a learning process.

The building of positive relations helps set the foundations for an environment conducive to interprofessional learning. The individuals within the rural sites of this study work together to build collegial working relationships. Paramedics in the rural areas of this study recognise that professional and personal relationships may take time to establish, but also that these relationships can extend beyond those of 'traditional' health care, to include a wide range of colleagues and importantly, include community members. Individual efforts are responsible for the building of a trusting environment by which leadership appears not in terms of control, but cooperation. Individuals do not work in isolation, and professionals establish a degree of interdependence where knowledge and acknowledgement of the roles of

others helps provide the foundations for an advance toward interprofessional learning.

With this cooperative approach, multiple professionals from several areas are engaged in patient care. Rather than acting in a siloed response to care, they are interdependent, willing to share aspects around that care and able to effectively communicate needs. They perform in their own roles but also understand each other's roles, and are prepared to listen to achieve an effective outcome.

Participants in this study, however, also reveal that the reality of working in their respective organisations presents some barriers to creating an environment suited to interprofessional learning. In one context, a 'protection of turf' can prevent full participation or joint decision-making between different professional groups, restrict a cooperative collaborative approach, and promote a siloed, isolated one. The policies and procedures of organisations, generally established to maintain governance of professional standards, are open to misinterpretation, or may not always consider local 'peculiarities'. Organisational rules, rather than promote cooperative professional approaches to care, sometimes restrict how medical and emergency service personnel interact in the pre-hospital environment. When peeling this back to the foundations of training within the ambulance service, an inherent feature is to establish paramedics as belonging to an exclusive profession.

The reality of organisational working is not only about rules and regulations or select professions, but the workplace culture within those organisations. Specific workplace cultures can block interprofessional relations (often manifesting as different forms of a hierarchy of control). One of these forms is in the use of gender. The gender-based observations of some participants suggest that one mechanism hindering interprofessional collaboration is the broader status differences between men and women. The use of rank is another form of hierarchy and appears both as an implied rank between different professions, and as a rank of position where individuals in positions of power choose to exert authority by over officious means.

Chapter 7 draws on theoretical background to discuss these main themes, in the form of a *theory of interprofessional learning and paramedic practice*.

Chapter 7: Discussion: A theory of interprofessional learning and rural paramedic practice

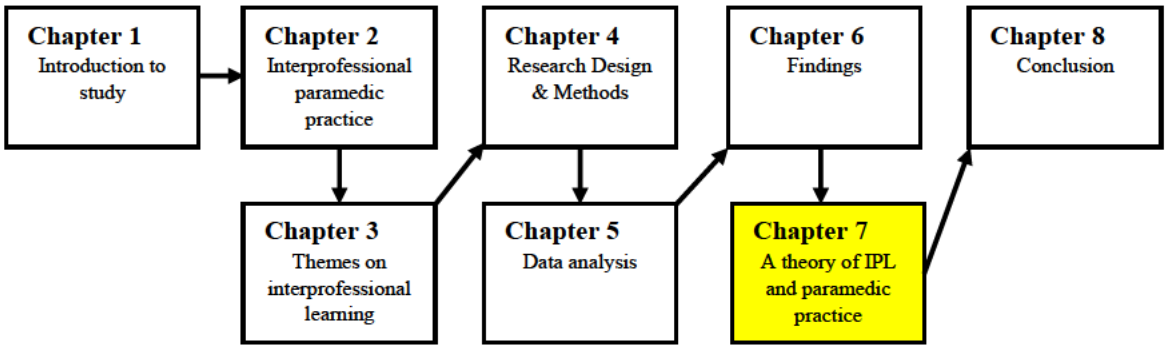


Figure 7.1 Thesis map, Chapter 7

7.1 Introduction

The purpose of this chapter is to elaborate on the findings presented in Chapter 6 and provide a theoretical interpretation of the incidents of rural paramedic practice and interprofessional learning, as highlighted by participants. Following a constructivist grounded theory approach, whereby the questions of what people assume is real, and how they construct and act on this reality is to the forefront (Charmaz, 2006, pp. 125-126), the discussion acknowledges this researcher's own interpretive perspectives and relevant literature, while incorporating prior theoretical works in this field.

A constructivist grounded theory approach, using CIT as a primary means by which to gather information on effective and less effective episodes of collaboration, provides the conceptual framework for this study. Findings reveal that interprofessional learning with a focus on effective patient care, is part of paramedic practice in rural areas. Of primary consideration, and in line with a main principle of constructivist grounded theory (to consider how context will affect definitions and explanations [Charmaz, 2017, p. 39]) is an operational context. Here is an awareness of any barriers that can interfere with interprofessional collaboration. Similar to that noted in other interprofessional literature (Brandstorp *et al.* 2016; D'Amour *et al.* 2005; Freeth *et al.* 2005; Smith *et al.* 2017; Way *et al.* 2000) learning occurs through

a process of developing personal and professional relationships, combined with a cooperative environment of mutual trust, sharing, and interdependence.

This chapter illustrates and discusses how each theme revealed in findings explains IPL and rural paramedic practice. It is these explanations (Glaser & Strauss, 1965, p. 3) that translate descriptions of themes into a *theory of interprofessional learning and rural paramedic practice.* The *theory of interprofessional learning and rural paramedic practice* is set out in Figure 7.2.

An important feature of rural healthcare is the interaction paramedics have with other health care professionals. Under certain contexts, interprofessional learning (IPL) can occur in these settings and thereby contribute to the quality of patient care.

Interprofessional learning arises through a dynamic process of inclusion and common purpose within an environment of professional acknowledgement, reciprocity & respect, interdependence and effective communication.

For interprofessional learning to progress, contextual awareness is a necessary condition that enables identification of operational barriers, establishment of relationships and development of the ground rules for cooperation.

The exercise of power inherent in this process and in the promotion of interprofessional learning, helps overcome operational barriers such as protected turf and workplace culture that frustrate care delivery. The processes of forming and developing professional relationships between participants creates an environment of interdependent practice in which patient care may be enhanced.

Figure 7.2 *A theory of interprofessional learning and rural paramedic practice*

This theory adds to the definition of interprofessional learning as an overarching term encompassing interprofessional education and interprofessional practice, aimed at promoting purposeful interaction with service users and carers, and providing quality patient care (NCIPECP, 2019). The *theory of interprofessional learning and rural paramedic practice* acknowledges the processes involved in interprofessional learning (including the formation of relationships and cooperation) and highlights the need for contextual awareness.

The findings of operational barriers, including workplace culture and protection of turf represent the contextual awareness of this theory. These findings incorporate professional roles, individual participants in paramedic practice and operating procedures of the services involved. The development of relationships and cooperation forms processes by which to facilitate an environment conducive to interprofessional learning. Contextual awareness and the processes involved in the *theory of interprofessional learning and rural paramedic practice* are illustrated in Figure 7.3 below.

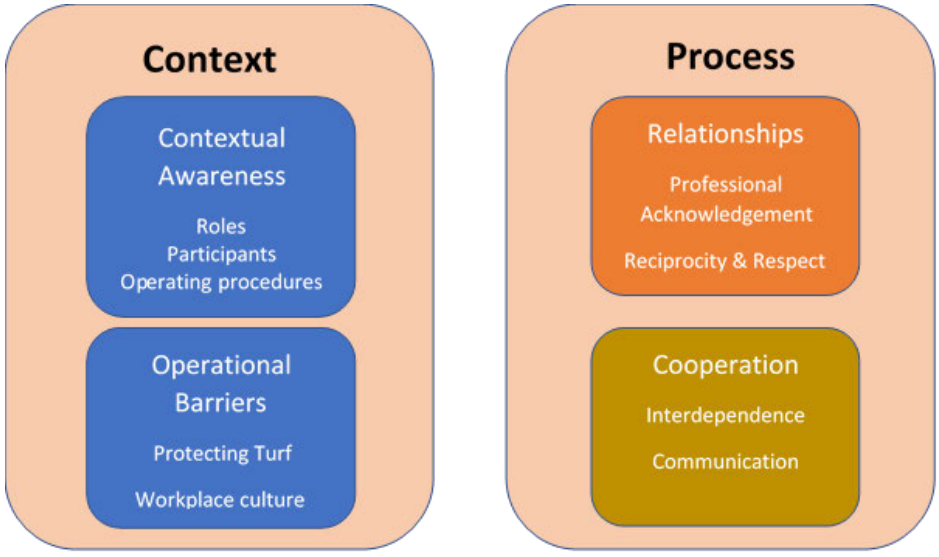


Figure 7.3 Components of context and process within *A theory of interprofessional learning and rural paramedic practice*

The *theory of interprofessional learning and rural paramedic practice* and the components of context and process rise as a direct result of the purpose of this research, to address a gap in the knowledge around interprofessional learning and paramedic practice and to investigate interprofessional learning involving rural paramedic practice in terms of interaction, learning outcomes and patient benefit. By doing so, new models can be developed by which to understand interprofessional learning and devise recommendations for paramedic practice and health service delivery, that can contribute to enhanced knowledge of interprofessional learning.

The three research questions posed in this study are:

1. **From a rural paramedic perspective, how do professionals from different backgrounds understand, interact and construct interprofessional relationships?**
2. **To what extent does the nature of power influence interprofessional learning in the rural setting?**
3. **What key implications present for the paramedic profession and interprofessional learning in the rural setting?**

Sections 7.2 to 7.4 describe the components of context and process, and elaborate on the findings from Chapter 6, while addressing the research questions. Section 7.2 discusses operational barriers and the context in which professionals from different backgrounds in this study interact.

The processes involved in developing relationships and cooperation within this operational context and explanations of the understanding and construction of interprofessional relationships are described in Sections 7.2 and 7.3. These three sections, in combination, address Research Question 1.

Section 7.5 discusses Research Question 2, which relates to the nature of power and interprofessional learning.

Finally, Chapter 8 of this thesis addresses Research Question 3.

7.2 Context – Operational barriers

A primary component of the *theory of interprofessional learning and rural paramedic practice* is that of contextual awareness, or the knowledge and perceptions attached to the setting examined; in this case, rural health care and paramedic practice. To this end, findings reveal that operational barriers identify features under which professionals work and which can restrict interprofessional interaction.

Two key examples of 'operational barriers' that impact on the ability of pre-hospital colleagues to interact in an interprofessional manner and discussed in this section are:

- *protecting turf*, where some professionals wishing to collaborate find themselves restricted from equal participation; and
- *workplace culture*, where aspects such as hierarchy or gender can obstruct team interaction.

Before progressing to a detailed discussion of operational barriers, it is important note a contextual feature inherent in the design of this study. With participants drawn from various models of paramedic practice and across several different rural sites, a fair assumption is that different models or sites would give rise to different contextual features. Through a process of theoretical sampling, however, where the aim of data generation is to support or refute emerging concepts and themes (Corbin & Strauss, 2008, p. 146), findings indicated little difference between sites or models. Of exception are the RA5 remote area site and the RA2, ECP cohort. The RA5 site consists of ambulance volunteers remote from any other professional backup. The focused codes 'diversity of work' and 'working solutions around care' are not part of participant data from the RA5 site. There is only brief mention of working with other emergency service personnel in the pre-hospital arena, and a distinct separation of volunteer work and hospital work. With the ECP model of practice, the focused code 'effects of gender' was absent.

Whilst ECPs potentially display a greater propensity to interprofessional practice in that both their training and practice include formalised interaction with

other professionals, it is difficult to link the absence of this code with interprofessional learning. A limited ECP cohort means that theoretical sampling to further investigate this code is not possible within the rural settings of this study. Regardless of these findings, both of the RA5 and ECP groups contribute to operational barriers in relation to findings of protecting turf and workplace culture.

7.2.1 'Protecting turf'

Findings from this study indicate a distinct impression of 'operational distance' between professions, including those in paramedicine. Underlying this is evidence of 'protecting turf' within and amongst health professionals in this study, where one group would establish boundaries by which to exclude full participation or joint decision-making by another group. This then leads to the creation of clear professional boundaries in some rural Tasmanian sites.

Recognition of a professional discipline is often linked with the ability of professionals to present as being recognisable by others, while at the same time maintaining some independence. Taking 'rural health' as a specific example, other health care disciplines in Australia embrace the idea that within their professions is a specialised arm known as 'rural health'. In nursing, legislation formalises the recognition of the rural and remote nurse practitioner (Bagg, 2004; McCann & Baker, 2002; Plager, Conger, & Craig, 2003; Roberts, 1996; Sullivan, Dachelet, Sultz, & Henry, 1978; Usher & Lindsay, 2003).

In medicine, some studies (Smith & Hays, 2004, p. 68; Wronski, 2003, p. 161) cite an article by Strasser (1995) which identifies four criteria by which to determine if rural medicine is a separate discipline; namely if it demonstrates the:

1. formation of an academic body representing the discipline;
2. presence of an intellectually rigorous training program;
3. emergence of a unique literature; and
4. recognition from outside the discipline.

Similar criteria exist for other professions, and aspects of paramedic professionalism are related to specific knowledge, understanding and skills required for practice, and suggestions for unique literature (Sassella & Melville, 2010, pp. 10-14).

The endeavour to maintain some form of identity for individual professions and distinguish them from others is long-standing. Since the eighteenth-century, physicians have sought exclusivity in the development of profession specific knowledge and application (Foucault, 1977). Chapter 2 of this thesis outlines the evolution of the paramedic profession in Australia; from an early mix of first aid providers (including police, military, and railway workers) through to large volunteer bases, and then salaried professionals. Educational changes form part of this evolution and are a means of establishing pre-hospital care as a unique profession. Most employers conduct 'in house' courses in paramedic care, however university-based paramedic education is now the norm. Most recently, paramedicine in Australia gained formal regulation as a profession under the Australian Health Practitioner Regulation Agency (AHPRA). This includes protection of the term 'paramedic' to include only those registered as practitioners (Paramedicine Board of Australia, 2018).

This historical background provides some rationale for the findings in this study that identify ways the language used when participating in paramedic education belong to a profession that is specialist in nature, and differs from other health care fields. The participants noting this are primarily ambulance volunteers; but also those with previous medical experience, and for whom the language used is familiar. However, rather than see their training as an opportunity to learn new terminology, even those with other health care experience, comment on how the delivery of training has little explanation or context, thus creating a state of confusion, and maintaining a distance between newcomers to pre-hospital care and experienced paramedics.

Further exaggerating this distance are comments from nurses, who had undertaken volunteer training, when observing the disregard for even practical skills, such as the ability to take a blood pressure. Regardless of prior learning, all new volunteers were deemed to start from a base level of 'zero' experience and knowledge.

By maintaining this distance, the paramedic profession is something 'different'; something that others can share in part, but not in full. Certainly, volunteers, including those with other medical experience, can be trained to specific

levels but are seemingly excluded or kept ignorant of the ‘inside secrets’ of paramedic care. This protection of intellectual content serves as a means by which only those ‘in the know’ can contribute fully to organisational social and professional structure (Goffman, 1990, p. 140).

It is, of course, appropriate to argue that some degree of intellectual protection should apply; there should be some delineation as to what makes a paramedic, nurse or doctor and so on. It is easy to teach skills to enable practice of various professions, but more difficult to encompass a complete professional ethos. Rather than covert efforts to create professional distance, perhaps at play are efforts to maintain professional identity through a difficult process of change. The reactions to such subversions of professionalism are exemplified during World War II, where professional trades such as pharmacy, or watchmaking, were taught on a purely instrumental basis to produce efficient practitioners within five or six weeks (much to the horror of those already in these trades who were protective of their existing knowledge and skills base) (Goffman, 1990, p. 55).

Far from expecting some sort of professional takeover, the medical professionals participating in ambulance volunteer training did accept they would be practicing to a level of care different to that of paramedics, but they also felt a more participatory process could enhance overall care. While noting some confusion around specifics of language, participants are forthcoming in stating they did not wish their previous experience to be superior to paramedic care, but to work within volunteer guidelines; while at the same time acknowledging the benefits previous experience can bring to the pre-hospital environment.

Compounding the observations around specialist language is the treatment of volunteers as ‘junior’ members of organisational and team structures, regardless of experience. Undergraduate students volunteering for rural medical placements are sometimes subject to similar conditions, with displays of aloofness and lack of consideration by qualified members of rural medical teams toward undergraduate medical students (Kaye *et al*., 2010, p. 4). Unsurprisingly, some medical personnel display disinterest in participation in interprofessional undertakings, whether this is as students in interprofessional education programs (Craig *et al*. 2014), or as

qualified professionals undertaking continuing professional development activities (Stafford *et al*., 2010).

Some general sociological ideas reflect this disconnection from past experience. Goffman (1991) states a person entering an institution as a new member comes with an existing culture of beliefs and activities, but forgoes these to fit in. The institution administers power through its staff; in the case of this study, salaried paramedics, by which the amount of information from the outside world (other professionals) is controlled (Goffman, 1991, p. 15-24). This finds representation in the ambulance volunteer, by a suspension of previous knowledge and a release of new knowledge and skills in isolation from what the recruit has previously experienced. Nevertheless, in this study, medical professionals such as doctors and nurses are still willing to participate in a 'junior' capacity as rural ambulance volunteers. Their drive to participate, and perhaps help in their local rural community in a volunteer capacity, is enough to overcome the organisational sublimation of their prior knowledge and experience.

'Protecting turf' of the paramedic profession extends further than the development of a specific language, which restricts access to those from other health care fields and includes some formal rules and regulations that serve to exclude full participation across different groups. These include the content and delivery of volunteer training, and the restrictions placed on recognition of prior learning. Rules, in the form of policy and guidelines that can restrict the opportunity for interprofessional collaboration, extend beyond the ambulance service. Nurse participants offer evidence of how hospital policy could limit the extent to which they could aid in the pre-hospital arena. As an extreme example, one remote area had a policy whereby nursing staff could not be ambulance volunteers, even in their own time. The hospital in this area went to the additional extent of an informal physical 'demarcation zone' to exclude the passage of ambulance volunteers (Memo 12: from FI comments).

These findings provide new insights into paramedic care and how organisation rules can serve to separate different professionals; however similar conclusions around rules and regulations of organisations with the capacity to restrict interprofessional learning are not uncommon. Operational aspects, such as medico-

legal issues, overregulation and lack of familiarity around various professional guidelines, have all previously arisen as reasons for reluctance to participate in interprofessional programs, and for limitations to the provision of care.

Way, Jones, Baskerville and Busing, (2001), in a study of collaborative services provided by nurse practitioners and family physicians in two rural Ontario primary care practices (2001) note that the application of nurse practitioner roles was less than expected (based on literature regarding nurse practitioner practice). Although set up as a means by which to encourage interprofessional practice, nurse involvement in rehabilitative care was below that of physicians, and referral patterns between practitioners was more unilateral, from nurse to physician, than bidirectional. Reasons cited include a lack of funding to help promote programs, and ignorance of nurse practitioner guidelines by physicians bought about by a lack of interdisciplinary training at undergraduate and postgraduate levels. They also note the reluctance of physicians to be involved, due to highly regulated healthcare practice and a lack of clarity around medico-legal responsibilities in their capacity of referral to nurses (p. 1213).

Policy and guidelines are important mechanisms by which to maintain a central control of operational and professional governance and to ensure a degree of consistency and operational control across an organisation. Foucault (1977, p.102) suggests the effectiveness of such systems lies in a mechanism of central observation by which power can be automated and de-individualised. The rural focus of this study, and the desire of different professionals to participate in pre-hospital care alongside paramedics, highlights a potential shortcoming in this current central control model. Perhaps the inclusion of more de-centralised and diverse decision making in the formulation of policy and guidelines can help guide a process of support for, rather than restriction to, interprofessional practice and learning within rural settings.

7.2.2 Workplace culture

Although greater diversity and situational awareness in the formation of policy and guidelines may help set the foundations for interprofessional learning in rural settings, workplace culture is of equal importance.

For paramedics, this is a culture somewhat based on high acuity and dramatic type work (Reynolds, 2008, p. 160; Simpson *et al*., 2017). At play is the idea that paramedics conform to roles where particular forms of behaviour are well established (Goffman, 1990, p. 37). Attendance to an acutely ill person for example, typically occurs in a team of two paramedics; both provide care together within that team, but do so generally without the intervention of other health services. Their care continues until arrival at hospital, where patient care then transfers to the next link in the health care team. Apart from a handover of patient information, the hospital team is separate to the pre-hospital team. Reinforcing this emergency-based culture, are overt operational structures (such as the lights and sirens on ambulances) down to the lesser-seen propensity to measure paramedic effectiveness in terms of response times to cases, rather than patient care outcome (Lennox, 2010, pp. 49-52; McCann *et al*., 2013, p. 760; Price, 2006, p. 128).

Certainly, such measures establish a uniqueness to the paramedic profession in provision of pre-hospital care, but another impact is that such cultural philosophies can present barriers to interprofessional practice. Professional differences have been present since the earliest attempts at formal IPL. Some medical students participating in early multiprofessional training wards failed to understand the interprofessional nature of such wards and were reluctant to participate in team duties (Reeves & Freeth, 2002, p. 45; Wahlstrom & Sanden, 1998, pp. 229-231).

Similarly, occupational therapy and physiotherapy students dismiss such activities as irrelevant to their future practice (Fallsberg & Wijma, 1999, p. 576). Promisingly, however, these types of barriers are reducing as understanding of interprofessional working progresses. Nursing students undertaking rural clinical placements in Tasmania, for example, had an initial fear of being subordinate to students from other professions; as their placements continued, these fears were unfounded, with many nursing students taking lead roles in clinical care (Dalton *et al*., 2003, p. 19). The work of extended care paramedics, as seen in this present study, where various health care teams may be cooperatively involved in a continuum of patient care that incorporates both the hospital and pre-hospital environment, demonstrates the presence of a newer type of culture that encompasses

a variety of professions. There are clear indications that different and emerging models of paramedic practice can encourage interprofessional learning.

To propose the presence of one overarching culture of emergency care (within ambulance practice) then is to some degree limiting however, unlike the cooperative nature of extended care work, not all cultural variations are an enhanced interprofessional environment. Different workplace cultural groups within paramedic practice include management, front line paramedics, or call takers and dispatchers (Schein, 1996; Waks, 2008; Wankhade & Brinkman, 2012).

Given the evidence of this study that gender plays a role in how interprofessional relations progress, it is not unreasonable to suggest the possibility of a different type of sub-culture in terms of gender. Ambulance practice in Australia has after all, evolved from a male-dominated background (Howie-Willis, 2009, p. 20). The findings of this study tread new ground in this regard, in that the role of gender (in the advancement of interprofessional learning) is a concept usually investigated in terms of how male or female health care students differ in their views of interprofessional teamwork (Falk, Hammar, & Nystrom, 2015; Tamas, Edelbring, Hjelm, Hult, & Gimm, 2017), or perform on the Readiness for Interprofessional Learning Scale (RIPLS) (Wilhelmsson, Ponzer, Dahlgren, Timpka, & Faresjo, 2011; Williams *et al.*, 2013).

The findings from this present study approach gender from a different perspective and suggest dual aspects of threat, and dependence. Previous studies argue the case that a primary mechanism hindering interprofessional collaboration lies in the broader (societal) status differences between men and women (Bell, Michalec, & Arenson, 2014). Perhaps this is the case with paramedic care, and questions are raised around wider sociological influence or simply individual interaction.

Statements about gender in this study certainly consider a broad sociological area of relevance, where interprofessional interaction is concerned. As stated, the paramedic profession in Australia is one which has a strong male-dominated background, with police, the military and other such services forming the basis from

which ambulance care developed (Howie-Willis, 2009). That such a background can influence the impact of gender within an organisation is not unusual.

Medical hierarchy, for example, is built upon a patriarchal model. As a result, nursing (due to the replication of 'feminine' characteristics) meant it was a good compromise occupation for women during the industrial revolution (Bell *et al*. 2014, p. 99). References to the chief of medicine as a 'father figure' is common; with the superintendent of a nursing school being called 'mother' (Reeves, Macmillan, & Van Soeren, 2010, p. 261). Although some progress from these positions has taken place, disparity still exists. Roles, such as nurse practitioner, mean nurses are gaining more ground; yet, domination by men still appears in medical specialties such as surgery, anaesthesiology and emergency medicine (compared with primary care, paediatrics and obstetrics, roles commonly filled by women (Bell *et al*., 2014, p. 99).

Greater numbers of women are present in positions of power and public leadership, but still represent a minority (Carli & Eagly, 2001, p. 629). Individuals in different status groups may have different standards, with women often having to prove their ability (Bell *et al.,* 2014, p. 100). The extent to which a gender framework may be relevant in an organisation can depend on the degree to which activities and roles are culturally gendered (Ridgeway, 2009, p. 153); it is not unreasonable to expect this background to have influence on how interactions take place. In this present study are episodes of male paramedics displaying a 'superiority' in driving skills, or females lacking the support of their male colleagues. Such examples cross over from operational culture to more general social fields and illustrate the perception of males as more influential (and competent) than women (Carli, 2001, p. 727). Similarly, responses that highlight a male volunteer taking offense to the way in which a female paramedic criticises his care, demonstrate 'threat' when faced with competency and assertive speech by women (Carli, 2001, p. 730).

Removing gender from such interaction leads back to a more basic suggestion of the existence of harassment and bullying among colleagues; again stifling any coherent interprofessional collaboration. Evidence that bullying and harassment form a part of ambulance practice in Australia is certainly a theme continuing over many years. A culture of 'command and control' in Victoria ended

with staff resigning over reports of bullying and harassment (Tomazin, 2006), with a resultant inquiry suggesting replacement within the management structure (Catalano, 2007). NSW experienced similar episodes (Wallace, 2008), as did the Australian Capital Territory (ACT) (Knaus, 2014a, 2014b) and Northern Territory (NT) (James, 2014).

Formal inquiry into both the Tasmanian and NSW ambulance services indicates the existence of an 'old boys club' and distinct divide between management and operations (Parker, 2008, p. 10-13; Thorpe, 2003, p. 13-14). A thin line exists between using gender and harassment as an explanation for some of the episodes reported in this study; although the two may go hand-in-hand. The incidents in which female participants are belittled because of driving could have dual meaning. So too, interpretation of the senior nurse who unjustly criticised one ambulance volunteer, causing him to re think his position as a volunteer, could appear threatening from a gender perspective, with a woman acting in an assertive way toward a male counterpart (Carli, 2001, p. 730), or could simply be a case of bullying.

What is evident is the presence of a hierarchy among professionals that can hold back any positive interaction. Internally, formal hierarchy within Australian ambulance is rooted in early military and police forces. This formal structure continues to modern day in the use of terminology (such as superintendent), and the use of epaulettes and uniform to designate rank. The enforcement of hierarchy appears together with the introduction of professionalism within ambulance, and the use of industrial action over several years to gradually reduce volunteer workforces from urban areas (Howie-Willis, 2009).

Certainly, as this study shows, a hierarchy of status exists between 'professional' paramedics and volunteers. Comments from volunteers in this study point to incidents where they were 'put in their place' by salaried paramedics. Similarly, this occurs on an interprofessional basis between professions. For example, the volunteer participant (C3, ambulance volunteer), who cites the disregard by a doctor of his handover of a patient with spinal injuries, several other incidents where doctors were difficult to deal with, and exchanges between nursing and paramedic staff.

This study suggests that a separation of professions can occur in the presence of a hierarchy of status, and this is not unusual where professional defensiveness and hierarchy are dominant (Stone, 2008, p. 117). Hierarchy of status is but one form of hierarchy seen in in findings of this study. The role of gender also has a large part to play with interprofessional interaction; both elements exist in a larger picture of workplace culture within paramedic practice. This workplace culture, in addition to the concept of 'protecting turf', highlights the importance of considering the contextual features under which interprofessional learning will take place. Weaving throughout this contextual milieu is the presence of power within interprofessional learning (Section 7.5 discusses this further). Sections 7.3 and 7.4 discuss the concepts of relationships and cooperation, and show that despite a context of care where distinct operational barriers to IPL present, these processes can work to promote and enhance interprofessional learning.

7.3 Process - Relationships

Although operational barriers around 'protecting turf' and workplace culture exist, other findings of relationships and cooperation provide processes by which to positively influence interprofessional learning and enhance patient care. The collaborative relationships observed as part of the findings of this study form a large part of a working environment conducive to interprofessional learning. The concept of relationships being more than just personal or professional interaction and involving acknowledgement and acceptance of the roles that each profession can bring to patient care is critical to this position.

This aspect of mutual acceptance promotes collaboration that recognises centralised organisational control (and the barriers this presents) and allows a shift in power from a central model to one that realises unique local requirements. Diverse types of health profession then become entwined in a level of patient care that considers not only a medical response, but one that is global in nature (incorporating social aspects in a whole-of-community approach). The concept of relationships should reinforce the definition of interprofessional learning, where through this rurally oriented community approach there is not only an integration and synthesis of

knowledge, but also purposeful interaction with service users and carers, and quality patient centred care (NCIPECP, 2019).

7.3.1 Professional Acknowledgement

A distinctive feature of this study is the focus on rural collaborative partnerships between paramedics and others involved in joint patient care, thus providing fertile grounding for interprofessional learning. Evidence of professional collaboration involving rural paramedics has existed since the mid 1990s with nurses involved in the training of paramedics in order to undertake health screenings and immunisations, and paramedics working and training with physicians, midwives and nurses in skills such as relocation of extremities, examination and treatment of eye injuries, ear irrigation, catheterisation skills and basic counselling (Garza, 1994b; Shoup, 1995).

More recently, paramedic programs in the USA and Canada have developed further, with the delivery of formal and informal multiprofessional health services to rural community members (Martin-Misener *et al*., 2009; O'Meara *et al*., 2018; Shah *et al*., 2010). Several Australian rural-based studies are reporting similar practices, with paramedics actively collaborating with other professionals to provide patient care (ranging from assistance in hospital emergency departments to care of patients with chronic conditions in the home environment) (Mulholland, O'Meara, *et al.*, 2009; Mulholland, Stirling, *et al*., 2009; Stirling *et al*., 2007). Many of these examples of collaboration have been around partnerships formed, for the distinct purpose of allowing paramedics to deliver extended scopes of practice beyond that of a pure emergency response focus. All have been set up in response to limited availability of health care in rural locations, and a recognition that paramedic services can extend to assist in areas of shortfall.

Important in the enhancement of such collaborative efforts, and as an alternative pathway to the operational barriers expressed by participants of this study, is the acknowledgement of the roles that other professionals play in patient care. The category of professional acknowledgement (as found in this study) represents one means by which the participants in this study:

- learnt about the different types of care that each can offer in given scenarios;
- accepted the different benefits each can bring; and
- actively cooperated in a patient care process.

This recognition of roles brings almost a reversal of the less effective effects of hierarchy, some operational rules, and 'protection of turf' syndrome, where different professional roles are pigeon-holed to specific, rather than cooperative, elements of care.

The differentiation between recognition and mutual acceptance of roles and operational barriers is exemplified in the concept of primary and secondary adjustment, proposed by Goffman (1991). Primary adjustment to an organisation is where an individual cooperatively contributes required activity of the role he or she is undertaking. He or she is a 'normal member' of the organisation and is expected to do no more or no less than what is asked of them (Goffman, 1991, p. 172). For a paramedic, this is most likely the role of an emergency practitioner in the pre-hospital arena, with the prevalent culture being that of high acuity work (Reynolds, 2008, p. 160; Simpson *et al*., 2017). In this situation, the paramedic has no requirement to extend their practice to the hospital environment.

In terms of secondary adjustment, an individual employs unauthorised means, and/or obtains unauthorised ends to work around organisational assumptions as to what he or she should do or should be. Secondary adjustments represent ways by which an individual stands apart from the role for granted for him or her by the organisation (Goffman, 1991, p. 172). This is not to suggest that paramedics or other health care members disregard their main roles and find ways by which to subvert normal operational requirements to suit some sort of new world order for paramedic care. Rather, what secondary adjustment means in the context of this study, is that relationships and acknowledgement of professional roles can provide a means by which to extend siloed practice in paramedic, nursing, or other medical care, to care where paramedics are confident in, and accepted as being able to provide aid in the hospital environment. Equally so, other medical staff can assist in the pre-hospital field of care.

Rather than being disruptive to the overall operation of an organisation, this schema fits with existing structures without introducing pressure for radical change (Goffman, 1991, p. 173). For example, the paramedic participant who took time to develop a working relationship with a notoriously difficult doctor did not adopt an approach to question or disrupt the place of the doctor in a hierarchy of care, but rather chose to work with this doctor in a position of mutual trust and respect. In opposition to posing barriers, professional acknowledgement and relationships developed over time can work with such hierarchy.

Similar adjustments appear with the extended care paramedics. With the ECP cohort a more complex process is that interprofessional learning is bidirectional between professions. In this study, the 'normal' role of the ECP is to actively participate in collaborative and more chronic based care with others, such as aged or palliative care, and community nurses. While extended care paramedics are accepting of their new role, some other medical professionals maintain a more traditional understanding of the role of paramedics. Pharmacists for example, are surprised that ECPs contact them regarding patient medical scripts, or nursing home staff and doctors are initially reluctant to allow treatment of patients *in situ*, rather than transport to hospital. This requires some degree of secondary adjustment by those not familiar with new paramedic roles; however, rather than initiated by those unfamiliar with new roles, they arose through active involvement of the ECP group in conducting information sessions with those who they would have professional contact. This active involvement also serves to reinforce the role of the ECP among the paramedics involved. On introduction of similar new paramedic roles into the United Kingdom, 'Elite' paramedics had no template by which to understand their part in new professional groups (Jashapara, 2017, p. 717). The ECPs of this study took it upon themselves to build such a template and create a professional identity by which to promote their roles, with whom they would be working.

Familiarisation with other professionals (on both personal and professional levels) is a key feature for the understanding of roles in order that interprofessional learning may advance. Emulating the effort made by the ECP group in forging professional relationships are activities undertaken by individual rural paramedics situated at other sites. This finding is significant as it reveals the actions taken by

rural professionals to informally establish working relationships so they can effectively practice with and learn from each other.

The fact that interprofessional learning takes time to evolve through developing relationships is something normally reserved for the process undergraduate students undergo when participating in long-term rural placements. The 'Interprofessional Rural Program of British Columbia' (IRP*bc*) (established in 2003) is one such program which requires health care students to undertake a continuum of care through rural placements, as an alternative to single and more specialist urban placements. Teams usually comprise four to six different professions; with students from nursing, social work, medicine, physical therapy, occupational therapy, pharmacy, speech language psychology, audiology, laboratory technology, and counselling psychology. Rural placements offer the chance to be involved in preventative care, home and community care, acute and long-term settings. Students had to meet several goals, including the understanding of the roles of interprofessional team members, awareness of professional boundaries, areas of collaboration, and teams and team interactions (Charles *et al*., 2006, pp. 43-48).

In Australia, the 'Rural Interprofessional Program Educational Retreat' (RIPPER) provides nursing, medical and pharmacy students with relevant situational learning in an interdisciplinary team, by use of simulated rural case studies. Here, students demonstrate positive shifts in benefits to the patient in working together, understanding professional roles and responsibilities, and in team working skills. There is strong suggestion that familiarisation with other roles can improve working relationships (Woodroffe *et al*., 2012, pp. 240-242).

While these episodes of formal interprofessional education among undergraduate groups indicate potentially enhanced relationships between different student disciplines, the initiatives undertaken describe only one step toward interprofessional learning. Although the aim of this present study is not to investigate the progress of undergraduates through to working practice, the study is unique in showing that in rural professional practice, an informal process can apply by which the development of relationships supports an environment conducive to interprofessional learning.

As with the student groups above, a range of professions find representation among the informal development of relationships in working practice. Paramedics, when discussing their activities in the pre-hospital area note working with other emergency service personnel, but also cite working with nursing staff and doctors. Professional relationships also incorporate others, including radiologists, community nursing, and, in the case of the ECP cohort, pharmacists. This is contrary to the suggestion that paramedics have long operated in a culture of emergency-based practice, largely as independent pre-hospital workers, and shows the influence that interprofessional relationships can have over contextual features (such as long-standing workplace cultural influence).

7.3.2 Reciprocity and respect

Importantly, although references to operational barriers appear across all sites of this study, so too, did the concept of relationships. Effective professional relationships in these rural areas can develop in the presence of barriers; emerging through the promotion and gaining of knowledge around what various professions can bring to the patient care experience. There was almost a disconnect of power from a centralised point of operational control, where status of position, or protocol and guidelines designed without consideration of local needs would take priority.

Alternative approaches include an exchange of knowledge to reinforce not only paramedic practice, but also that of rural colleagues. A paramedic who had developed a working relationship with hospital nursing staff, and where there was bilateral acknowledgement of roles, can confidently assist with care in a hospital setting.

Similarly, in this study, an ECP and pharmacist collaborated on best means by which to administer to medication needs of a patient with difficulty managing the English language. Paramedic care is no longer an ‘institution’ of operational oversight, but one whereby the individual has the power to inform (rather than control). Similarly, when looking at hospitals or schools from the eighteenth century (where the formation of knowledge and power combined), they generally reinforce each other in a circular process. Institutions, rather than occurring as insular mechanisms of control, become instruments by which branches of knowledge such

as clinical medicine, psychology, or various forms of education can occur (Foucault, 1977, p. 224). The relationships forged by rural paramedics and their colleagues in this present study offer a means by which different professions can effectively learn from and practice with each other.

7.4 Process - Cooperation

Relationships are not alone in encouraging interprofessional learning in paramedic care; cooperation is also essential. As with relationships, a degree of cooperation will occur in the presence of operational barriers. As an example, from the study findings, the scene of a motor vehicle accident cited by participant C3 (ambulance volunteer), a hierarchy of status meant rude treatment of ambulance volunteers by some paramedics on scene. Cooperation between others at the scene, however, still resulted in treatment and transport of the patient/s concerned. The incident serves to illustrate a loss of potential learning opportunities by erecting barriers between some of the personnel involved. In other incidents, paramedics and volunteers, or paramedics and nurses, acknowledge the skills each can bring to the scene. Nurses would set up intravenous infusions, or volunteers could confidently hand over care without fear of having their care questioned. Cooperation involves a degree of interdependence, in addition to effective communication and feedback around processes of interaction and patient care.

The findings discussed in Chapter 6 note interdependence and communication as individual categories under the theme of cooperation. Section 7.4.1 discusses interdependence, and raises two further areas for discussion: innovation and cooperation as a social system. In both of these, communication, in combination with interdependence, is an essential element in interprofessional practice.

7.4.1 Interdependence

What emerges with cooperation is more than independent multiprofessional working and incorporates a strong degree of interdependence. Team members experience interprofessional practice, not as a takeover of one profession by another, but as a combined effort in patient care. Historically, paramedic dependence on other

professionals occurs globally during the establishment of extended care roles for paramedic. To train in new skills, such as health care screenings, immunizations, advanced wound care, or assessment and treatment of musculo-skeletal injuries, paramedics have long been reliant on other health care professionals to learn and practice these new areas of practice. (Martin-Misener *et al*., 2009; Misner, 2005; Raven *et al*., 2006; Shoup, 1995).

This present study demonstrates a move from dependence on other professions to mutual interdependence. As a prime example, the extended care cohort not only establishes new knowledge and skills by training with others, but on gaining acknowledgement and understanding of new ECP roles, other health care workers can call on them for assistance or advice. For example, the incident where a community nurse had trouble with urinary catheterisation of a patient, her awareness of the ECP's skills means she could confidently work in collaboration with the paramedic to achieve an effective outcome for that patient (H1, paramedic). Other findings demonstrate the extended care group is not alone in interdependent practice. Cooperation between paramedics and medical staff in local hospitals means that different practitioners can confer in the treatment of difficult episodes of care, such as airway problems, cardiac arrest, or even social issues.

Importantly, such interdependence is not a professional takeover; rather, it is an opportunity to be involved in shared practice. Studies show that shared practice can appear outside any formal interprofessional curriculum and reinforces the idea that interprofessional team members can develop common goals, share leadership roles, and develop mutual respect and understanding of each other's roles (Smith *et al*., 2017, pp. 4-6).

An appropriate example is that of an incident recalled by a paramedic (F2), when a deteriorating child patient required advanced sedation. The paramedic details how a doctor, flight paramedic, other paramedic, and nurses all worked together as a team to facilitate treatment. The paramedic was able to offer advice and assistance to the doctor and nursing staff, and *vice versa*. The overall care is described as "managed really effectively". Leadership in this incident is not a competition, nor a hierarchy of control, but something that can rotate between members, based on the

advice and assistance each can offer. Importantly, the patient was the ultimate focus of this cooperative and shared care.

This interdependent sharing of care is an alternative to the operational barriers that can exist as a contextual background to paramedic care and is partially due to random individual (or group efforts), rather than a formalised operational structure. Organisational rules, particularly around how training progresses, hierarchy of status, gender-based effects, or individual obstruction seem to be unmoveable norms; but interprofessional interaction sees these norms challenged and change initiated.

A new paramedic to a rural area, for example, would sometimes make deliberate moves to establish and promote interaction between professional groups, ranging from hospital staff to other emergency services and the local community. The development of trust between professionals enhances an environment conducive to IPL. Despite a degree of unpredictability and somewhat *ad hoc* nature of this process, a flow of energy, (incorporating a process of feedback between team members) exists throughout such a system (Velde *et al*., 2002).

7.4.2 Innovation

Although interprofessional cooperation can be arbitrary in nature, the results of this study indicate a degree of innovation to overcome constraints, and advance an interprofessional learning environment. For example, rural paramedics rather simply leave a patient at hospital, would (when necessary) extend their pre-hospital care to assist other medical staff in the hospital setting. Innovation, and how it can be incorporated to effect change within a system is defined by Rogers (1995) as diffusion theory. Rodehorst *et al*. (2005, p. 160), in their study regarding perceptions of team member roles in interdisciplinary simulation exercises, cite four elements as part of diffusion theory:

1. innovation, identified as an idea, practice or object that is new to an individual;
2. communication channels or strategies used to communicate the innovation;
3. time for innovation process, and

4. a social system or set of interrelated individuals engaged in joint problem solving to accomplish a common goal.

Similar themes appear in this current study. Several paramedic and nurse participants, for example, display innovation in approaching other rural health professionals in a proactive stance to help facilitate ongoing mutual understanding and relationships. Communication channels become an important part of the IPL process, with clear communication becoming a critical component of paramedic care. In addition to innovation and communication, affording time to the development of the learning process appears in several areas of this study, and is in process codes, such a 'knowing team members' or 'incorporating community'. At the other end of the spectrum, codes such as 'rushing in' demonstrate a concern as to how inattention to interprofessional working can lead to possible compromise of patient care or professional collaboration.

7.4.3 Cooperation as a social system

The process of cooperation in this study means that some intersection of roles is evident, with the professionals involved rising to potential challenges posed by this melding of roles. In the incident where a paramedic assists a radiologist while waiting for doctor support (F2, paramedic), this is not of one profession trying to move across boundaries, or of blurred roles, but of mutual learning about the activities of others and cooperation to help benefit patient care. It is an innovative and communicative approach by the paramedic and radiographer that helps facilitate a timely patient care process. This positive finding counters evidence where nurse practitioners and doctors performing similar functions may experience blurring of roles, to the extent that interprofessional learning stalls due to misunderstanding of where each stand (Rodehorst *et al*., 2005, p. 164). Professional cooperation presents as more than simply working alongside each other. In combination with the relationships developed, it becomes a social system. This system recognises interprofessional relationships between paramedics and other rural professionals as enhancers by which participants would facilitate joint problem solving. Participants move toward the common outcome of effective patient care and interprofessional learning.

Further support for cooperation, as a form of social system, is in the ways in which different professions identify with each other. Results from this study indicate links between interprofessional learning and establishment of a common group identity. This aspect of the theory of paramedic care and interprofessional learning borrows somewhat from social identity theory, where the derivation of identity comes from membership of social groups. Intergroup relations are based on social comparisons between groups, with participants looking for a distinctiveness to their own group, compared with others. In this way, they build positive social identity and self-esteem (Tajfel & Turner, 1986).

Ambulance volunteers, for example, associate strongly as part of a paramedic team. This is even the case where ambulance response was from a hospital base and the qualification mix of responders varies from general volunteers to nursing staff. Despite differing hospital qualifications, each would work together in equal capacity as ambulance volunteers in the pre-hospital field. When paramedic staff respond to the same incident, mostly all work together in a professional and cooperative manner.

Cooperation extends from a purely professional basis to a personal one, with participants knowing each other by name rather than by profession. This serves to reinforce the strength of interprofessional practice (Dickinson & Carpenter, 2005, p. 26). Several participants in this study noted other professionals in this manner, and highlight the nature of rural relationships. One nurse participant, for example, talks about a paramedic by name when describing the benefit gained from training sessions he conducts for nursing staff. “He was not ‘Bob the paramedic’, but simply ‘Bob’, part of an interprofessional team” (D2, nurse). Another nurse participant (A3, nurse) refers to paramedics as part of the “family”.

Of course, there are exceptions to this, and harking back to operational barriers, these serve to illustrate how exclusion from a group can hinder interprofessional relations. This occurs pre-hospital with comments around hierarchy of position, or by mentioning certain professionals by name in interviews; not as a positive process but as a means of alienating that person from any suggestion of collaborative cooperation. Several participants comment on the failure of the ambulance service to provide recognition of prior learning, and in this way feel that

the service was including them as ‘volunteer’ staff, but not prepared to accept them as health professionals with previous experience. Whilst most accept the organisational rules around internal training and governance, there is the doctor who wanted to volunteer but gave up due to the red tape involved in his transition from doctor to ‘volunteer’ (G2, ambulance volunteer).

The treatment of cooperation as a social system where participants develop relationships, identify with certain elements, or adopt innovative means in establishing professional connections, leads to the realisation of an interprofessional community. In terms of paramedic care and interprofessional learning, concepts of community of practice arising are cited. Community of Practice theory comes from the work of Lave and Wenger (1991), and is:

> *... participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities* (Lave & Wenger, 1991, p. 98).

This study adopts a constructivist grounded theory approach. Charmaz maintains that grounded theory is not bound to one theoretical approach (Bryant & Charmaz, 2007, p. 21), and this does not preclude the introduction of other theory/ies in order help explain findings. It is useful to consider parallels with community of practice theory.

This study is poised to break new ground in this area. When discussing their research into care of stroke patients Kilbride, Perry, Flatley, Turner & Meyer (2011, p. 94) note there is little in the way of documented development of Communities of Practice with experienced health care professionals. The researchers conducted a study in a London teaching hospital among a group of self-established group of nursing, therapy and medical staff who were involved in the delivery of stroke care. Three elements arose that support the notion of a Community of Practice in this interprofessional team: domain, community and practice. Domain is the improvement of stroke care and defines a core purpose for staff actions and common ground for collaborative working. Community refers to the group of people gathered with the domain in mind. The community helps build social capital, with the development of connections between practitioners, fostering of relationships, and

links to behaviours such as respect and mutual confidence. Practice is present through mutual engagement of members in the domain activity (Kilbride *et al.*, 2011, pp. 94-96).

The cooperative nature of practice presented here in the *theory of interprofessional learning and rural paramedic practice*, offers further support of the elements of domain, community and practice a community. In this case, domain is the concern all participants had for the provision of patient care. The interprofessional learning process provides an overarching means by which to provide effective care. Participants in this study did this by operating in a 'community'. Professional acknowledgement means that those involved in paramedic care relate to the roles of others, and acknowledge and accept the contributions that each makes in patient care. This acceptance recognises that some roles may evolve to incorporate a merging of professional boundaries. In addition to this, it is the acceptance that interprofessional learning is not only a collective effort, but that individual contribution is important in the ability to build the relationships required of an interprofessional environment. Patient care extends beyond the pre-hospital care provided by paramedics, incorporates a wide range of health care professionals and includes other emergency service workers, as well as community members.

In this way, as with the health care members of the study by Kilbride, Perry *et al.* (2011), 'practice' is present through mutual engagement of members and the presence of elements, such as sharing, interdependence and communication. Each of these areas demonstrate the power of cooperation in influencing an interprofessional learning setting.

7.5 Understanding Power and Interprofessional Learning

The concept of power threads throughout the each of the main themes of operational barriers, relationships and cooperation. The nature of power as part of interprofessional learning is both overt and subtle in presentation. The *theory of interprofessional learning and rural paramedic practice* helps to understand how power can manifest as part of interprofessional learning.

Findings around operational barriers pose more overt presentations of the nature of power, and a primary case of this is when the paramedic profession is presented as one that seeks to project a distinct sense of exclusivity. As discussed in Section 7.2, it is not unusual for different professions to maintain some form of professional identity, but when this stands in the way of professional interaction it hinders a bilateral learning process.

The paramedic profession is not alone in this type of professional dominance, and this study demonstrates episodes where doctors or other medical staff create barriers to input by others. The inclusion of different models of paramedic practice, including volunteers and hospital-based staff, allows this study to provide a unique lens to paramedic care in this regard. At a most basic level this is supported by statements by volunteers to the effect that language alone can serve to reinforce barriers to paramedic practice. This is similar to previous studies, which suggest that language skills can serve to both empower and disempower (Soklaridis, Kelner, Love, & Cassidy, 2009, p. 664; Vaara, Tienari, Piekkari, & Santti, 2005, p. 595). Specialist vocabularies or jargons further promote the idea that one must earn the status and authority of given positions (Fairclough, 2001, p. 53).

The restrictions placed on other health professionals when they wish to participate in ambulance volunteer work, also exposes borders that limit the acceptance of previous knowledge and skills in their capacity as volunteers. Here, is mounting evidence of a discourse of an exclusive paramedic profession. In way of an analogy, this is not unlike the example given by Fairclough (2001) who speaks of religious rituals where only a priest can officiate at a church service, and that to gain access to training in this capacity, potential applicants must comply with a rigorous process of selection, meeting a range of entry conditions from academic ability to certain moral standards and beliefs (Fairclough, 2001, p. 53). In terms of volunteering in ambulance services, previous medical knowledge may allow access to training, but it does not provide a shortcut to admission in this ‘exclusive’ field of medical practice.

The power in this sense of exclusivity is further highlighted when considering that certain rules and regulations, or paramedic workplace culture, serve to formalise this segregation of professions. Parkin’s (1979) work on Marxism and

class theory describes such actions in terms of closure; that is, the attempt by one group to secure a privileged position at the expense of some other group by a process of subordination or exclusion. Metaphorically, this is power in a downward direction as it creates a group or class defined as being inferior, or outside of the group in power (Parkin, 1979, p. 45).

Parkin (1979) proposes two main forms of exclusionary devices: the institutions of property, and academic or professional qualifications and credentials (Parkin, 1979, p. 48). The power in using academic or professional qualifications is overt in this study of rural paramedics and IPL, as seen in the unwillingness to accept recognition of prior learning from other medical professionals wishing to join the ambulance service in a voluntary capacity. This right to control the access of other medical professionals to the domain of pre-hospital care can, however, also appear in terms of 'institution of property'. The right to property does not necessarily extend to a Marxist belief in the power inherent in the possession of capital assets, but can be the right to exclude other individuals from the usage of a given thing (Parkin, 1979, p. 53); in this study, for example, the right to practice as a pre-hospital practitioner. Collaborative practice with paramedics is in some instances controlled and restricted by a workplace culture steeped in a hierarchical system, based on emergency response and individual practice (and roots in military institutions, as noted in Section 7.2).

Where exclusionary elements can promote segregation and closure of professions, presenting a downward use of power, so too, an upward use of power can also emerge. Usurpation is the term given to an opposing form of social closure, mounted by a group in response to its outsider status and collective experiences of exclusion. Examples are the efforts of ethnic or racial groups to attain civil rights or attempts by women's' organisations to achieve equality with men (Parkin, 1979, p. 74).

In this study, the meetings held by some staff at the hospital-based paramedic model of practice are an example of usurpation in attempt to rectify problems associated with recognition of prior learning for nursing staff working as ambulance 'volunteers'. Other, broader approaches serve to break down cultural barriers. For example the incident cited by participant E1 (paramedic) when a paramedic

approached a doctor with a particularly difficult reputation with the aim of building a working relationship. This resulted in a mutual respect developing between the two.

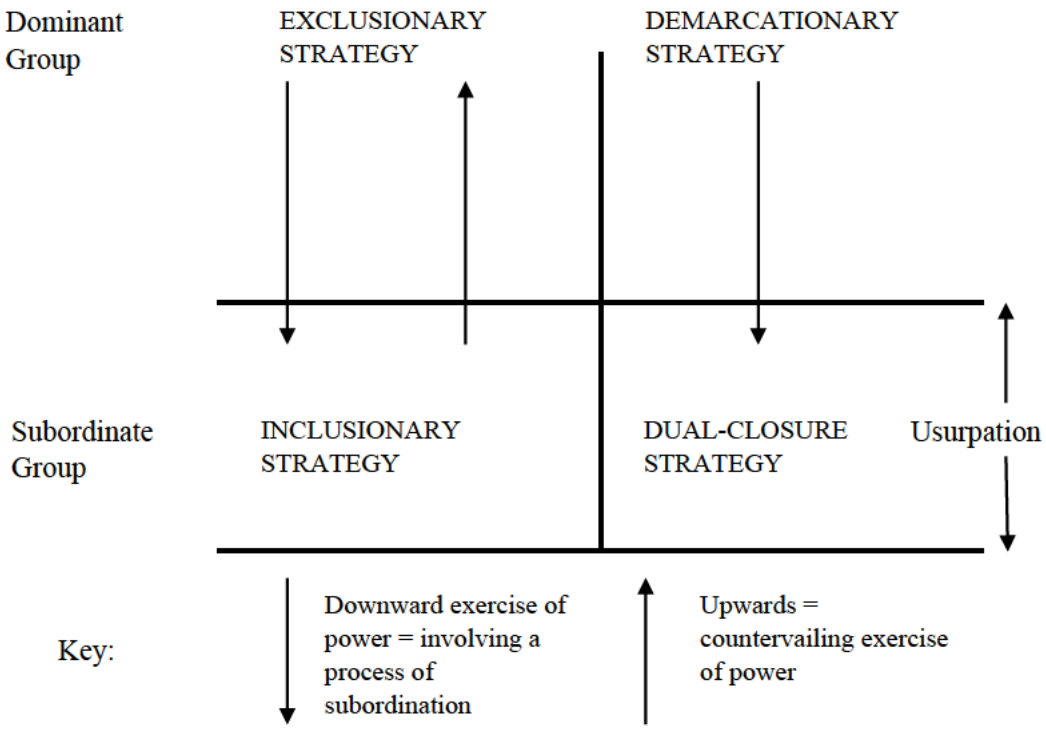
Further, the work done by the ECP cohort to promote their new role resulted in changing a viewpoint held by some others – of paramedic care as solely emergency response and transport to hospital – to one that can incorporate other professionals in the treatment of patients in their home environments.

Similarly, the cooperative nature displayed by paramedics working with rural hospital staff in times where joint working and knowledge proved valuable to patient care outcomes. Such actions are not to gain entry to other professions, but to challenge traditional understandings of paramedic care, and to promote trust and a sharing of professional skills and knowledge.

Combining these downward and upward approaches with professional and social closure is not new to concepts relating to power and interprofessional learning. Baker, Egan-Lee *et al*. (2011) utilised Witz's strategy of occupational closure (Witz, 1992), to explore perspectives and experiences of power. Baker, Egan-Lee *et al.* (2011) employ semi-structured interviews with 132 participants across a range of health and social care professions, sourced from six educational and clinical institutions that collaborated to provide a series of IPE activities (Baker *et al*., 2011, p. 100). In a literature review concerning articles dealing with power and conflict in interprofessional education from 1954-2013, Paradis and Whitehead (2015) identify the study by Baker *et al*. (2011) as an exemplar for future investigation of power and IPE, and of 129 papers broadly about power and conflict, it is the only direct examination of power issues (Paradis & Whitehead, 2015, p. 404).

Witz's strategy of occupational closure is relevant to this discussion of power, interprofessional learning and rural paramedic practice. It adapts some of the work by Parkin (1979) and includes four different types of closure strategies by which professions interact as organised bodies with traditions, strategic orientations, and a desire to advance members' interests. The work by Witz (1992) concerns the concept of patriarchy and professions but breaks from a confined view of male dominance in the household to examine the presence of an unequal distribution of power in general society (Witz, 1992, p. 3). The four strategies proposed by Witz

(1992) and illustrated in Figure 7.4 are: 1) exclusionary, 2) demarcationary, 3) inclusionary and 4) dual closure.



Exclusionary	a downward use of power by a dominant profession in order to control entry to that profession and create a monopoly over skills and knowledge
Inclusionary	used by subordinate professions to challenge exclusionary strategies and involve an upward push of power to gain entry to the dominant profession.
Demarcationary	involves a downward push to control boundaries between related professions in order to secure a position of power on professional hierarchy.
Dual Closure	used by subordinate professions in response to demarcationary strategies and involves a two-way use of power • usurpation pushing upward challenges demarcationary strategies to change the structure of hierarchy • exclusionary strategies push downward to secure a place in the hierarchy

Figure 7.4 Witz's model of professional closure

(Adapted from: Baker *et al*., 2011, p. 99)

Exclusionary and inclusionary strategies represent intraprofessional power, while demarcationary and dual closure are concerned with interprofessional power relations (Baker *et al.*, 2011, pp. 99-100). Exclusionary strategies manifest as those created to exclude women from routes of access to resources such as skills, knowledge, entry credentials or technical competence to preclude them from entering an occupation. Demarcation strategies, on the other hand, are mechanisms of inter-occupational regulation concerned with the control of boundaries between occupations. Inclusionary strategies emerge in response to exclusion and involve an upward push of power in order to gain entry to the dominant profession (Witz, 1992, pp. 46-50).

The concept of dual closure is complex and according to Witz's (1992) interpretation, represents ways by which women can contest demarcation. This does not simply involve an upward resistance to demarcation strategies of occupational groups, but employs exclusionary devices of its own in order to consolidate positions in hierarchy (Witz, 1992, pp. 48-50). The idea of dual closure, introduced by Parkin (1979), considers that groups adopt usurpation against exploitation and exclusion; but this can also prompt forms of exclusion from within their own ranks. Parkin (1979) gives the examples of various union groups that might fight for further progression and rights in the labour market, whilst at the same time close ranks in order to exclude certain classes or groups from their own membership (Parkin, 1979, pp. 90-91).

This current investigation of interprofessional learning and paramedic practice has several similarities with Witzs' (1992) model, with examples of all four strategies at play. This is partly due to the unique research design that includes different models of paramedic care, which allows for examination of both intra- and interprofessional relations. From an intra-professional perspective, exclusionary strategies are evident with control of the entry of ambulance volunteers who may have prior medical experience. The use of specific language and regulations regarding practice are evidence of this. On the other hand, inclusionary strategies see such practitioners continue to offer their services as volunteer, ,despite operational barriers; but, also when providing care alongside other paramedics, those with previous medical experience found acceptance rather than rejection.

Interprofessional aspects relating to demarcation certainly are evident in the rules and regulations of both the ambulance service and some hospital services. Formal restrictions mean the limiting of other professionals when working with paramedics, or as volunteers. On some occasions, the presence of a hierarchy of status helps to reinforce these barriers.

Even so, despite the presence of exclusion, demarcation, and countering inclusive actions, the *theory of interprofessional learning and rural paramedic practice* (in terms of power) has distinct differences form the concept of occupational closure proposed by Witz (1992). One interpretation of Witz's (1992) model is that of a closed system. Certainly, groups with lesser power in the system can present strategies by which they can move toward greater acceptance and inclusion; for example, the education sessions conducted by ECPs in order to promote acceptance of their new roles. However, the idea of dual closure as a counter to demarcation, presents a means by which the less dominant group also develops exclusionary strategies of its own, thus creating a further cycle of domination. The paramedics, volunteers and other professionals of this study demonstrate a more open approach in that acknowledgement of different roles, cooperation, and developing relationships can breach operational barriers. Individual roles are not a means by which one group can then gain power over another. In this more open system, there is a common purpose leading to interdependent practice and patient care. In terms of the idea of a community of practice, professionals become partners in provision of care rather than separate identities.

Although participants from each site involved in this study cited incidents where operational barriers exist, the *theory of interprofessional learning and rural paramedic practice* does not assume that operational barriers will always occur but does ask to consider the context under which interprofessional learning will operate. The doctor participant in this study, for example, did not cite operational barriers, but was forthcoming with positive incidents when relationships developed with paramedics, and cooperative working fostered an environment where interprofessional learning contributed to patient care. The nature of power when linked with interprofessional learning occurs from an open view point, rather than a 'top down' approach. Participants in the rural sites examined reveal a gravitation

toward solutions outside organisational influence, to increase interprofessional awareness.

Rather than a promotion of paramedicine as an exclusive model of pre-hospital care, are examples from participants (such as the doctor above) of both formal and informal interprofessional learning conducted between medical staff and paramedics. Some volunteers for example, seek to expand their knowledge by working in areas with busier workloads. Conversely, comments by those with qualifications in both nursing and paramedicine indicate a distinct advantage that this broader scope of knowledge brings to the ability to provide more rounded patient care.

Importantly, the power inherent in the development of relationships and cooperative nature of interprofessional work, does not always represent a struggle against operational barriers, but is about empowering professionals, through interprofessional learning, to enhance a patient care environment that incorporates a whole of community approach. Patient care can encompass global considerations including social, as well as medical needs. Where possible, patient management can be on a local basis; whether this means an ECP providing care in the home environment, or a paramedic working with local hospital staff to arrange admission to a nearby rural facility (rather than transport to major urban centres hours away. Several incidents arose where paramedics would actively seek out relevant community members to build awareness of available services. This can simply range from a local ‘meet and greet’, to conducting first aid education sessions for community groups.

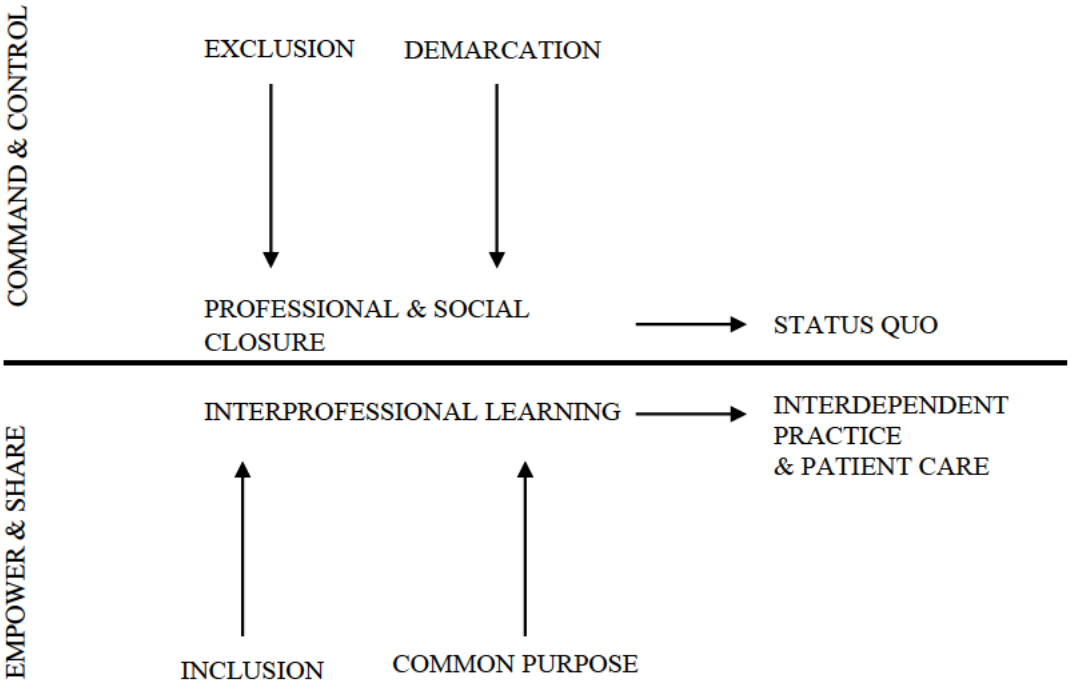
Paramedic practice as a community-based approach in rural areas has shifted from a more centralised model of control to one guided by local community needs. Suggestions for paramedic practice more integrated with community needs are noted in several reports and studies (Department of Health and Human Services USA, 2004; National Highway Traffic Safety Administrator, 2000; O'Meara, 2002). The extended care model of practice is one area where such suggestions come into force, with management of patients suitable for treatment at home, cared for in their own environment rather than face unnecessary transport to hospital.

This study shows that extended care paramedics are not alone in this type of practice. It is fair to state that rural paramedics, and associated colleagues, tend to work together in informal rural specialties. Although some operational barriers present as means by which to separate professions, relationships, acknowledgement and mutual trust, empowered these interprofessional rural 'specialties' to emerge. As with the ECPs, rural paramedics are equally part of an interprofessional team and, through immediate care, combine with regular meetings with others on that team. They are able to convey messages to hospital and other medical staff that are pertinent to a patient's social as well as medical wellbeing. Leadership within these teams, particularly in rural accident and emergency departments, is not about promotion of one profession/al over another, but of the most appropriate resourcing to enable effective patient care.

The importance of these informal collaborative efforts is strengthened with the realisation that similar formalised efforts are observed to benefit not only physically related medical conditions, but result in in significant improvements in symptoms of depression, anxiety, post-traumatic stress disorder (PTSD), and associated somatic symptoms (Osofsky *et al*., 2014, pp. 280-283).

From a unique perspective, the relevance of a whole of community approach is further demonstrated by traditional healers in rural Africa. These healers understand the concept of interaction of psychological, social and cultural factors with biochemistry and physiology. This is to such an extent that in some research, calls are made to investigate collaboration between mental health practitioners and traditional medical practitioners (Nelms & Gorski, 2006, pp. 188-189; Patel *et al*., 2007, pp. 1058-1059). Here, power represents both a centralised operational approach, and one that is more regionally specific, for the empowerment of health care professionals and the communities for which they care.

With these notions of a community-based response, informal interprofessional practice and rural specialties adapting to specific rural needs, the *theory of interprofessional learning and rural paramedic practice* offers a new way of thinking about power and interprofessional learning. Figure 7.5 illustrates this model of power.



Exclusion	the use of power by a dominant profession in order to control entry to that profession and create a monopoly over skills and knowledge
Demarcation	the control of boundaries between related professions in order to secure a position of power on professional hierarchy
Inclusion	use of professional acknowledgement, reciprocity and respect to develop mutual acceptance of professional roles
Common purpose	an open approach to working, incorporating interdependent practice

Figure 7.5 Model of power in IPL and rural paramedic practice
(Adapted from Witz, 1992)

Rather than a struggle against exclusion or demarcation, the model proposes that exclusion and demarcation are present in the form of operational barriers. These present a command and control type of system whereby professional closure restricts the capacity for interprofessional learning, and a *status quo* is created. Importantly, and additional to this professional closure, is social closure, where demarcation can appear not only at a professional level, but a personal one, where aspects such as genderism and harassment may occur.

The power to resist this professional and social closure and promote an open approach of interprofessional learning lies within a system of empowerment and sharing. Here, inclusion involves professional acknowledgement, reciprocity and respect, but also allows for change at an organisational level where political and institutional support for interprofessional initiatives can lead to the formation of interprofessional programs, or clinical governance frameworks can attend to issues such as harassment or conflicts of interest (Lennox, 2010; Oandasan & Reeves, 2005).

The concept of dual closure is not part of this model; instead, the model introduces the idea of common purpose. Here, the relationships and cooperation developed by rural practitioners may form rural 'specialties' based on specific needs; rather than closing ranks within these specialties, a continual open attitude is adopted that results in interdependent practice. Instead of a closed loop of power struggles, this model represents a means by which power is focused toward an outcome of effective patient care, rather than operational control.

7.6 Summary of theory

This study approaches interprofessional learning and paramedic practice from the viewpoint of working professionals situated in rural areas. Research utilises a constructivist grounded theory approach and CIT to propose a grounded theory on interprofessional learning and rural paramedic practice. This theory states that rural paramedic practice incorporates a mix of professional interaction through which an interprofessional learning process enhances patient care. Interprofessional learning arises from a dynamic process where operational barriers, relationship and cooperation can promote or restrict the learning process. For interprofessional learning to progress, a contextual awareness is paramount. Operational barriers, including a protection from 'professional turf' and workplace culture that can erect borders to interprofessional interaction. Processes that involve the formation and development of professional relationships, and cooperation between participants in care, foster environments in which interprofessional learning can add value to the patient care experience.

This section offers a brief summary of areas related to context, process, and the presence of power, concluding with an illustrative representation of the grounded *theory of interprofessional learning and rural paramedic practice* (Figure 7.6).

7.6.1 Context

Contextual awareness in the *theory of interprofessional learning and rural paramedic practice* identifies the presence of certain operational barriers. Paramedic practice exhibits a specific identity, but this identity sometimes inadvertently means the creation of distance between different professions performing similar roles. The findings about those participating in ambulance volunteer training (including those with previous medical experience) indicate a specific language and 'internal secrets' of paramedic practice, which serve to erect barriers between professions. Further to this, some operational regulations and policy help to maintain this distance and reinforce these perceptions. Other medical professionals who wish to participate in pre-hospital care with paramedics often face limitations to their level of practice. Similar restrictions confront some ambulance staff in their participation within the hospital environment. Workplace cultural aspects, including a hierarchy of status and the presence of gender inequity, compound these barriers to professional interaction and, although multiprofessional work in independent silos of care is possible, interprofessional practice can be difficult.

An awareness of the operational context in which professional care will take place is an essential step in establishing an environment best suited to interprofessional learning. Operational barriers are the main theme behind contextual awareness; however, this study also recognises that some barriers may not always be present. The extended care paramedic cohort, for example, provides no evidence of the effects of gender. The processes of relationships and cooperation, as part of the second stage of the theory of interprofessional learning and paramedic practice, provide the means by which to advance interprofessional learning, while maintaining an alertness to contextual features of the practice setting.

7.6.2 Process

The findings relating to relationships and cooperation provide the processes by which to nurture interprofessional learning. Familiarisation with other professionals

(on both personal and professional levels) is a key feature to the understanding of roles in order that interprofessional learning may advance. Those involved in paramedic care take the time to informally forge working relationships, by which they can effectively practice with and learn from each other. Effective professional relationships are not about establishing a hierarchy among professions, but are built on the promotion and gaining of knowledge around various professions. Relationships are more than just personal or professional interaction and they incorporate acknowledgement and acceptance of the roles that each profession brings to patient care.

Relationships are only part of an interprofessional picture, with cooperation a necessary adjunct to the learning process. Productive cooperation between professionals in this study incorporates a strong degree of interdependence when team members saw interprofessional practice not as a takeover by one profession over another, but as a combined effort in patient care. This is an opportunity to be involved in shared practice whereby interprofessional team members develop common goals, share leadership roles, and develop mutual respect and understanding of each other's roles. Operational barriers, especially around organisational rules, hierarchy of status, gender-based effects, or individual obstruction can initially appear as unmoveable norms, but through interprofessional interaction and cooperation these norms are challenged and change initiated.

Change through the development of relationships and cooperation is not a foregone conclusion bought on by contact alone. A degree of innovation to overcome constraints and advance an interprofessional environment is apparently required. For example, rather than simply leave a patient at hospital, rural paramedics, can, when necessary, extend their pre-hospital care to assist other medical staff in the hospital setting. Cooperation can appear as a form of social system where different professions identify with each other in a common group identity. The theory of interprofessional learning and paramedic practice borrows somewhat from social identity theory and community of practice theory. The former is when identity is derived from membership of social groups, and the perception of being part of the 'in-group' is viewed more positively than the 'out-group'. The latter refers to participation in an activity system in which participants share

understandings about what they are doing and what this means in their lives and for their communities (Lave & Wenger, 1991, p. 98).

With this knowledge, the themes of relationships and cooperation contribute to a second part of the *theory of interprofessional learning and rural paramedic practice*, which involves processes aimed at overcoming potential barriers and fostering an environment where interprofessional learning can add value to the patient care experience.

7.6.3 The exercise of power

A key concept in the *theory of interprofessional learning and rural paramedic* ***practice*** is that it is a dynamic process: there is effort expended by the professionals involved. Aspects such as the development of relationships, or cooperation, for example, do not emerge from contact alone, and one important adjunct to the dynamics of the theory is the presence of power.

Running through the main themes of operational barriers, is the concept that relationships and cooperation are both overt and more subtle presentations of the nature of power, as part of interprofessional learning. Findings around operational barriers pose more overt presentations of the nature of power. The promotion of exclusivity, use of rules and regulations, and a hierarchy of status represent a use of power to both restrict entry to the profession of paramedic, and to control the boundaries between professions. This exclusion and demarcation sets up a system of command and control in which professional closure maintains *status quo*, but is resistant to interprofessional practice and learning. However, an alternative push in the form of relationships and cooperation also appears as part of this study. Importantly, the power inherent in the development of relationships and cooperative nature of interprofessional work, does not always represent a struggle against operational barriers, but is about shared practice and empowered professionals. The resultant interprofessional learning, enhances a patient care environment that incorporates a whole of community approach. Paramedic care as a community-based approach in rural areas is a sensible and sensitive move from a more centralised model of control to one guided by local community needs.

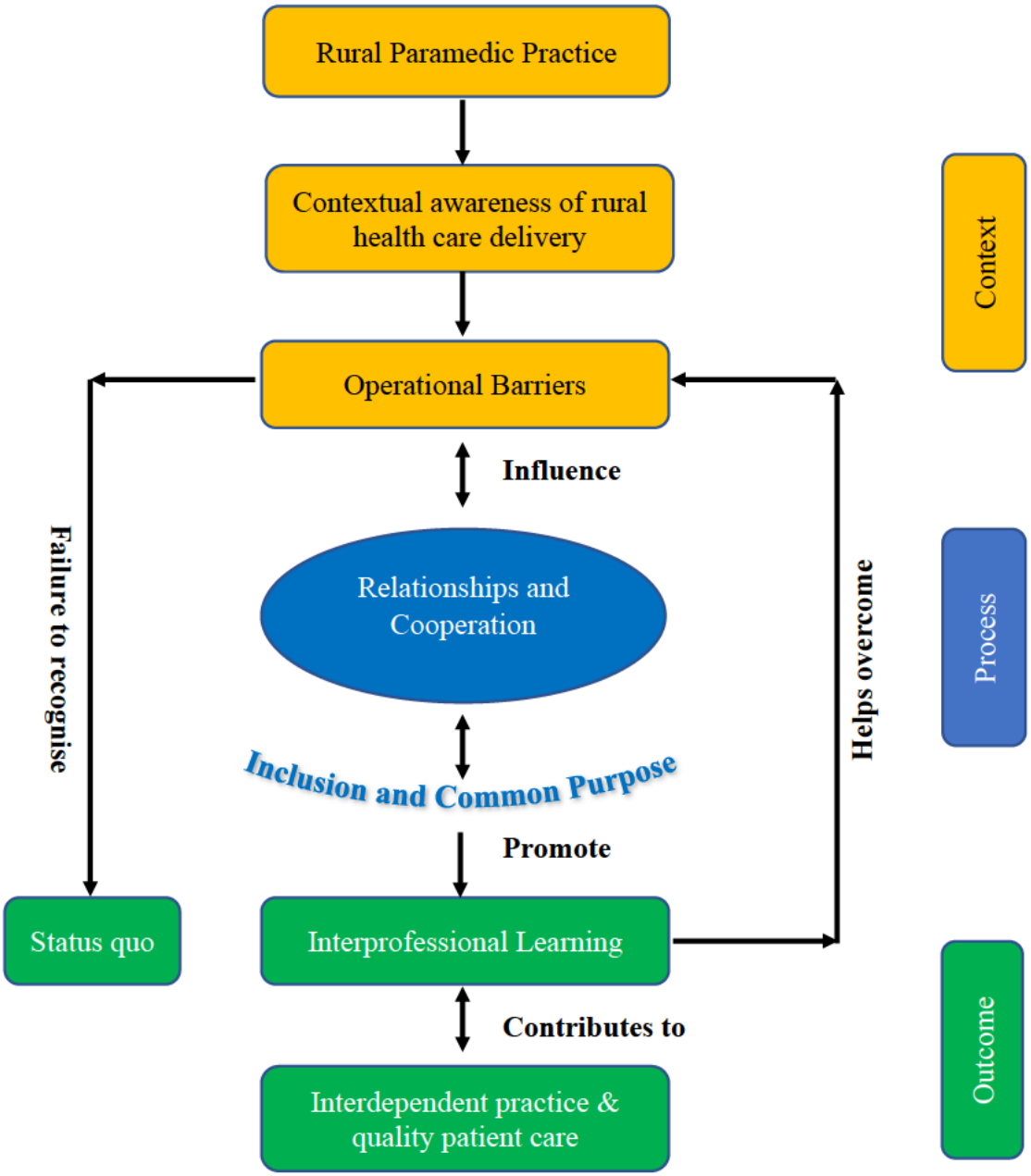


Figure 7.6 Diagrammatic representation of A theory of interprofessional learning and rural paramedic practice

In concluding this summary of theory, Figure 7.6 offers a visual representation of the proposed *theory of interprofessional learning and rural paramedic practice.* It includes consideration of context, which in turn influences

and is influenced by processes involving relationships and cooperation. Inclusion and common purpose represent the power inherent within this process to produce an outcome of interprofessional learning, which leads to interdependent practice and quality patient care.

The *theory of interprofessional learning and rural paramedic practice* offers unique and original contribution to knowledge around interprofessional learning. The theory acknowledges the processes involved (including the formation of relationships and cooperation) and highlights the need for contextual awareness. It adds to the definition of interprofessional learning as an overarching term encompassing interprofessional education and interprofessional practice, aimed at promoting purposeful interaction with service users and carers, and providing quality patient care (NCIPECP, 2019). Importantly, although pre-hospital care in Australia began its development in the early 1890s in Australia, it was not until very recently that official recognition as a profession for paramedics took place. Indeed, only from December 2018, registration for paramedics in Australia became a formal process (Paramedicine Board of Australia, 2018). This theory serves to build and test knowledge around what is a relatively new discipline in the interprofessional arena.

7.7 Chapter summary

This chapter discusses results and addresses the first two research questions;

1. **From a rural paramedic perspective, how do workers from different professional backgrounds understand, interact and construct interprofessional relationships?**
2. **To what extent does the nature of power influence interprofessional learning in the rural setting?**

The next and final chapter is an evaluation of the research, and a discussion of the significance of the research findings against the aims of the study, and the three research questions.

Sections 8.3.1 and 8.3.2 re-visit research questions 1 and 2. Section 8.3.3 addresses Research Question 3 and discusses implications for the paramedic

profession and interprofessional learning in the rural setting. Chapter 8 includes limitations and the strengths of the study and potential directions for future research.

Chapter 8: Conclusion

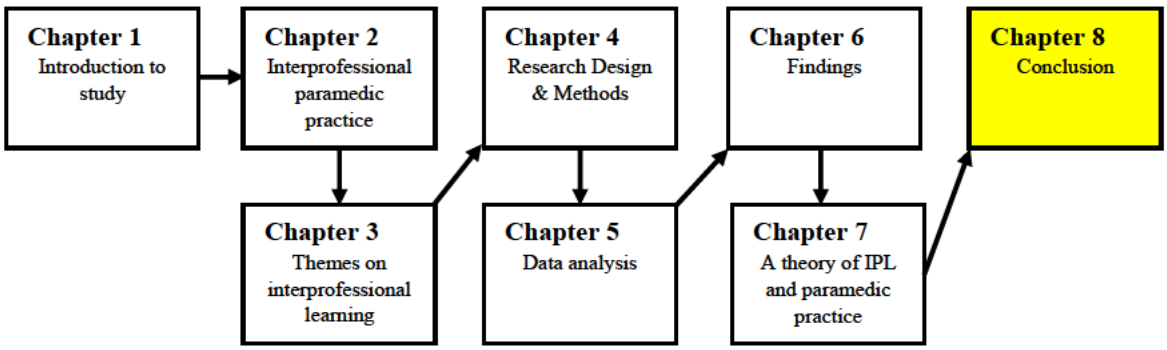


Figure 8.1 Thesis map, Chapter 8

8.1 Introduction

The aim of this research was to investigate interprofessional learning involving rural paramedic practice in order to address significant gaps in the literature and to create new knowledge on this area. Its purpose was to examine interprofessional learning and rural paramedic practice in terms of interaction, learning outcomes and patient benefit, and develop recommendations for paramedic practice and health service delivery that can contribute to enhanced knowledge of interprofessional learning. To this end, this study adopted a grounded theory of interprofessional learning and rural paramedic practice, and in doing so reduced gaps in knowledge around the ways by which diverse groups involved in paramedic practice interact and convey meaning about an interprofessional approach.

In a focused examination of the (limited) literature around interprofessional learning and paramedic practice, the call for further research is clear. Despite literature on rural paramedic practice providing evidence of collaboration with other health care practitioners, the associated literature is largely descriptive. The ways by which different professional groups involved in paramedic care interact or convey meaning around an interprofessional approach remains largely unexplored. Rural interprofessional literature provides only some insights into the concept of interprofessional learning and incorporates elements of education and practice.

A consistent finding associated with interprofessional practice and learning in rural areas is the benefit to not only health care practice, but also to the respective

rural communities. The relationships between and within different interprofessional groups provide a glimpse of power at play within interprofessional learning; however, the nature of power in these relationships is an area around which little knowledge is locatable. Although different interprofessional themes are present, there is scant use of theory to support the concept of interprofessional learning. These gaps in knowledge around interprofessional learning and paramedic practice generated three research questions:

1. **From a rural paramedic perspective, how do workers from different professional backgrounds understand, interact and construct interprofessional relationships?**
2. **To what extent does the nature of power influence interprofessional learning in the rural setting?**
3. **What key implications present for the paramedic profession and interprofessional learning in the rural setting?**

This final chapter focuses on the findings of this study and their significance in addressing the three research questions.

8.2 Contributions of this study

This study contributes new information around interprofessional interactions involving paramedics. The findings provide new insights into interprofessional learning and rural paramedic practice. The presence of operational barriers, development of interprofessional relationships and cooperation combine in *A theory of interprofessional learning and rural paramedic practice* with a central focus of patient care. The theory (summarised in Section 7.6) is shown in Figure 8.2.

The concept of power threads its way through the theory. One key aspect identified is a command and control structure, where exclusion and demarcation are present, not only from an organisational sense but also in forms of hierarchy, and professional dominance. Conversely, the element of power is evident in terms of empowerment and sharing, where the acknowledgement of roles and sharing of knowledge and skills between different professions, influences how individuals interact as interdependent rather than independent practitioners.

This study extends the definition of IPL to include detailed elements of collaboration and interaction. It explains how purposeful interaction between professionals occurs and the resultant and potential positive impact on patient care. For IPL to occur, interprofessional relationships and cooperation are paramount; however, an awareness of operational context is also necessary in order for a learning process to influence patient care.

An important feature of rural healthcare is the interaction paramedics have with other health care professionals. Under certain contexts, interprofessional learning (IPL) can occur in these settings and thereby contribute to the quality of patient care.

Interprofessional learning arises through a dynamic process of inclusion and common purpose within an environment of professional acknowledgement, reciprocity & respect, interdependence and effective communication.

For interprofessional learning to progress, contextual awareness is a necessary condition that enables identification of operational barriers, establishment of relationships and development of the ground rules for cooperation.

The exercise of power inherent in this process and in the promotion of interprofessional learning, helps overcome operational barriers such as protected turf and workplace culture that frustrate care delivery. The processes of forming and developing professional relationships between participants creates an environment of interdependent practice in which patient care may be enhanced.

Figure 8.2 *A theory of interprofessional learning and rural paramedic practice*

In addition to findings regarding the nature of interaction between paramedics and other professionals in interprofessional learning, the methods used propose new ways by which to investigate this field. A constructivist grounded

theory approach is an appropriate basis from which to conduct this investigation. This method utilises the stories of experienced paramedics and others involved with paramedic care in rural areas. Combined with a reflexive approach from the perspective of a paramedic researcher, the study advances a theory of rural paramedic practice that places patient care central to collaborative practice and interprofessional learning.

This study represents a unique use of grounded theory, in combination with Critical Incident Technique (CIT), to reveal effective and less effective incidents when paramedics collaborate with other professionals. In contrast to a singular method of data generation, the use of grounded theory promotes an approach that is not bound to one theoretical stance or method of gathering of data. The use of CIT in this study presents a unique way of examining paramedic practice and interprofessional learning.

8.3 Key findings of the research

This study provides an understanding of three main themes – relationships, cooperation and operational barriers – as they apply to interprofessional learning and rural paramedic practice. Each is developed from critical incidents, when there was context around that incident, reflection had taken place and participants can identify a learning process. Most incidents describe episodes of clinical care. Each concept contributes to an explanation or theory of IPL and paramedic care. For example, if operational barriers present, we can predict a restricted process of IPL; alternatively, the themes of relationships and cooperation help explain the nurturing of interprofessional relationships. The following sections align key findings with each Research Question.

8.3.1 Key findings related to Research Question 1

Research Question 1 is: **From a rural paramedic perspective, how do workers from different professional backgrounds understand, interact and construct interprofessional relationships?**

Collaborative relationships require cooperation, and it is from this premise the findings of reciprocity and respect, interdependence and communication play out

in a process of IPL. The work that various individuals put into building amicable and workable professional relationships presents as a powerful adjunct to IPL. Rather than professional control, there is a shared idea of the value each profession can contribute in the delivery of patient care.

Findings support the valuable association between sharing and interprofessional learning. Professionals working in rural areas display a high degree of interdependence and shared practice. The process of interprofessional learning assists in developing and maintaining this interdependence and shared practice. This eventuates outside any formal interprofessional curriculum and results from the relationships developing between the professionals involved. Knowledge of each other's roles and capabilities helps team members develop common goals, shared leadership roles and mutual respect and understanding. Most importantly, patient care is the focus of this cooperative and shared care.

The cooperative nature of practice supports the notion that participants in this study operate in a 'community' of practice. Professional acknowledgement means that those involved in paramedic care relate to the roles of others and acknowledge and accept the contributions of each other in patient care. Interprofessional learning is a collective effort; but also, one that incorporates individual contribution to build the relationships required of an interprofessional environment. Patient care, both in and out of the hospital setting, incorporates a wide range of health care professionals, including other emergency service workers (as well as community members) in a mutual engagement of care.

Despite this cooperative approach, two major operational barriers impact on the ability of pre-hospital colleagues to interact in an interprofessional manner, namely:

- 'protecting turf', where some professionals wishing to collaborate find themselves restricted from equal participation; and
- workplace culture, where aspects such as hierarchy or gender obstruct team interaction.

'Protecting turf' is especially evident where volunteer ambulance personnel (including those with other medical experience) underwent training to specific levels

while at the same time being forced to experience distance from other aspects of care. This commences during volunteer training, where a specific paramedic 'language' becomes evident but not fully shared with participants at volunteer level.

Other medical professionals undertaking volunteer training believe a more participatory process can enhance overall care. 'Protection of turf' extends to restrictions placed on recognition of prior learning, and rules in the form of policy and guidelines. These rules restrict the opportunity for interprofessional collaboration and extend beyond the ambulance service. Nurse participants give examples of ways hospital policy can limit the extent to which they can aid paramedics in the pre-hospital arena.

Operational barriers point to issues that were deep rooted in professional culture. Gender inequity is one sub-culture identified in this study. This study breaks new ground in that the role of gender in interprofessional learning is a concept conventionally investigated in terms of how male or female health care students differ in their views of interprofessional teamwork (Falk *et al*. 2015, Tamas *et al*. 2017), or perform on the Readiness for Interprofessional Learning Scale (RIPLS) (Wilhelmsson *et al*. 2011). However, the findings from this present study approach gender from a different perspective and suggest both threatening and utilitarian aspects, from a working professional aspect, rather than a student-based one. The gender-based observations of some participants prompt future conversations about a primary mechanism hindering interprofessional collaboration: the broader status differences between men and women.

Gender differences are a form of hierarchy; yet this is not the only form of hierarchy evident in this study. A professional hierarchy of status can equally obstruct interprofessional relationships. Volunteer ambulance staff cite incidents where they had been 'put in their place' by salaried paramedics. Likewise, similar episodes occur when status associated with professional position would prevent a two-way communication process and disable the possibility of interprofessional interaction. These episodes are often between doctors and ambulance volunteers or paramedics, but similar exchanges are clear from the study, between nursing and paramedic staff.

The forms of hierarchy observed in this study indicate a power differential at play between various professionals; however, this is not the only form of power observed, and key findings pose a model of power new to interprofessional learning and paramedic practice. This model includes an open approach, where positive aspects such as cooperation and the development of relationships, help establish and promote interprofessional learning.

8.3.2 Key findings related to Research Question 2

The second research question is: **To what extent does the nature of power influence interprofessional learning in the rural setting?**

This study presents a model of power, with relevance to both rural paramedic practice and interprofessional learning. The model is dual-sided. On one hand is a command and control structure, whereby professional and social closure exist to maintain a *status quo*; on the other is empowerment and sharing, by which to promote and enhance interprofessional learning. Although the former still delivers a patient care outcome, operational barriers restrict interprofessional activity. The outcome of the latter, however, is one of interprofessional and interdependent practice, with a common goal of patient care.

Under command and control, a process of exclusion and demarcation serves to distance different professionals from gaining a footing in each other's domain. Examples of exclusionary factors are the specific language or skills pertinent to the paramedic profession; demarcation would be created through operational rules and regulations that can serve to erect borders in the form of failure to recognise prior learning or experience. Such factors are responsible for limiting the practice of, for example, a nurse in the pre-hospital arena, or of a paramedic in the accident and emergency department of a rural hospital. The presence of professional hierarchy results in further demarcation between professions; this occurs not only at an organisational level, but also a personal level through genderism and harassment.

Conversely, empowerment and sharing, rather than appearing as a closed loop of power based on operational control, offer an open approach aimed at promoting IPL. Inclusion and common purpose form the basis for this empowerment and sharing. Inclusionary factors offer a more traditional means by which to tackle

the issues associated with exclusivity. For example, the struggle of various medical personnel to gain recognition for prior learning when undertaking volunteer ambulance training, presents in the form of various meetings to discuss and raise concerns. The idea of common purpose describes the relationships and cooperation developed between professionals in rural paramedic practice.

Previous models of power, such as Witz's (1992) model of professional closure, describe how various groups strive toward overcoming demarcation, only to establish their own excluding factions. The model of power in interprofessional learning and rural paramedic practice turns this idea on its head with the idea of common purpose, where professionals remain open to new contributions and membership.

8.3.3 Key findings related to Research Question 3

The third research question is: **What key implications present for the paramedic profession and interprofessional learning in the rural setting?**

The *theory of interprofessional learning and paramedic practice* considers the context under which interprofessional learning takes place, and incorporates processes involving the development of relationships and cooperation. It is from these different standpoints that implications for practice arise.

Although operational barriers present as a main theme in this study, this is not to say that the tactics of exclusion and demarcation (noted as part of these barriers) are without recourse at an operational level. With reference back to the historical and social perspectives outlines in Chapters 2 and 3, there is some evidence that political and institutional support for IPE initiatives, or the planning and leadership of such initiatives are imperative when considering the development of successful formal interprofessional programs. Political support can help create interprofessional incentives and influence accreditation, certification and licensure bodies.

In general terms, such support appears throughout the development of paramedicine as a profession. Globally, current roles of paramedics that incorporate closer working with other health care practitioners, are evolving though discussions

between ambulance administrative bodies and overseeing government bodies. The extended care paramedic role in Australia for example, has fledgling appearances in some states, but now finds increased nationwide support and development through a Federal Government project designed to formally investigate this new role for paramedics.

In general, the paramedic profession in Australia developed from isolated *ad hoc* services, through to largely volunteer oriented services, and now mostly salaried professional paramedics with university-based education. So too, the development of clinical governance frameworks sees the maintenance of professional standards, including management of issues such as harassment or conflicts of interest. One Tasmanian Government report suggests a greater focus on interprofessional engagement and may lead to interest in expanded paramedic roles (Department of Health and Human Services, 2012). Operational exercise of power, then, does not always stifle activities that incorporate interprofessional learning and if utilised correctly can help promote and support interprofessional learning.

Moving from an operational perspective, this study highlights the positive effects of developing professional relationships and cooperation. Relationships develop as part of contact with other professionals; however, may not always result in positive interprofessional outcomes. Certainly, as observed in this study, contact alone does not always result in a harmonious outcome. The consequences of inequality arose with study participants, especially where some form of enforced hierarchy exists. This is most evident with the active discouragement of some ambulance volunteer staff from making an interprofessional contribution. The message of the findings is that the ways in which groups come together and cooperate within an interprofessional context vary. When positive relationships and cooperation flourish, the professionals involved have equal status, and common goals. This mostly requires individual effort to build trust and mutual respect. The findings of this study also show that simply placing different professionals together does not always result in positive outcomes in terms of interprofessional learning; but with some work, favorable, cooperative and productive relationships will ensue.

In terms of the work required in developing relationships and implications for practice, the extended care paramedic model is an exemplar in this study; partly due

to the high propensity toward interprofessional work as part of the role, but also the interprofessional nature of the training undertaken. Where formal learning with other professionals is carried out, the ECP cohort is vocal in the positive effects this has on their practice.

Further, when in the ‘field’, ECPs notice that those with whom they have contact during training, such as community nurses or palliative care staff, are more informed and willing to utilise ECPs in planning episodes of patient care. This study reinforces evidence from previous rurally oriented studies, where early contact with the roles of varied types of professional serves to not only increase learning opportunities, also but improve collaboration and enhance clinical reasoning. The initial training contact experienced by ECPs is not a standalone influence in the development of interprofessional learning. Active work on behalf of the ECP group promotes knowledge around their new roles, and increases understanding among other professionals previously unaware of these roles.

There is some suggestion of an emergency-based culture within paramedic practice; however, responses from participants in different models of practice in this study tend to illustrate how this culture is not a foregone conclusion. Of the critical incidents put forward by the ECP participants, many were around chronic episodes of care that place patient outcome as a central focus. In comparison (and confirming an emergency response-based culture) most incidents from participants in other models of practice were around acute care episodes that involved patient care but placed the type of episode (such as, cardiac arrest, motor accident, critical assault and dangerous patient) as the focus.

From this study there is no doubt that paramedics from the rural areas and models examined, work in close collaboration with other health care professionals to provide both formal and informal health care services to rural community members. As noted in Section 7.5, rural paramedics and associated colleagues work together on equal footing in informal rural health care teams. Leadership in these teams is often fluid, with the most appropriate person taking control depending on the circumstances. The mutual trust and acceptance between team members transfers through different settings, with paramedics in pre-hospital scenarios having the confidence to refer to hospital-based staff for advice on patient care and on-going

management. There is a direct implication that the ‘specialty’ of rural medicine is not only about doctors or nursing staff but is inclusive of a wide range of professionals involved in ongoing interprofessional relationships.

8.4 Evaluation of the study

The methodological and analytical approach to this study results in movement through a data generation and coding process to the proposal of theory. This study adopts a constructivist approach to grounded theory, and as such, criteria of grounded theory guide the research. As discussed in Section 4.4.4, Charmaz (2006), identifies four key measures for assessing quality and rigour in constructivist grounded theory: credibility, originality, resonance, and usefulness. To be credible, data should be sufficient to merit the claims made, with strong logical links between data, analysis and argument. With the concept of originality, the project should offer new insights and have some social and theoretical significance. To be resonant, the categories revealed should portray a fullness of the studied experience and the grounded theory itself should make sense to the participants or people that share the circumstances studied. Usefulness refers to the implication that the study can offer interpretations that can be of use in everyday practice. Each is further discussed in the following sections.

8.4.1 Credibility

This research explores interprofessional learning and paramedic practice within a rural context. Analysis of interviews with rural paramedics, and others who have contact with paramedics in the delivery of their care, provides the basis for the study. Interpretation of the stories told by participants is done through the lens of considerable researcher experience in the field of paramedicine (30+ years), and with field notes and memos. In line with constructivist grounded theory, comparisons from data allow the construction of concepts, while simultaneously linking these concepts with data (Charmaz, 2006, p. 181). The findings are not presented as ‘facts’, but as ‘constructed truths’ where defensibility depends on the capacity to present the constructions in a meaningful and useful way (Thorne, Kirkham, & O'Flynn-Magee, 2004, p. 6).

The research comprises a wide range of data from different rural models of paramedic practice, and also extends this examination of interprofessional learning beyond paramedics alone to include others with whom paramedics may work. The concept of theoretical sampling drives a 'saturation point' for data, not derived on amount of data or numbers of participants, but on the development of categories and themes. Researcher involvement in the interview process (transcribing, re-reading of transcriptions, memos, field notes and a close familiarisation with all sites involved) are important components in getting close to the data and increasing confidence in overall credibility.

8.4.2 Originality

This study offers fresh insights into the limited body of work that comprises paramedic practice and interprofessional learning. Other qualitative works concerning paramedic practice are descriptive commentaries, rather than thorough investigations. Quantitative methods generally focus on the interprofessional learning experience of undergraduates. In combining grounded theory with CIT, this study presents a research technique unique to paramedic practice, as it is a means of gathering and rendering data capable of representing the voices of those collaborating in paramedic practice.

8.4.3 Resonance

In representing these voices, this research conceptualises and conveys meaning to the collaborative practices of those involved with rural paramedic practice. In using participants from a variety of rural sites and professions, the impact of findings is broad, to include not only paramedics but with relevance across a wide field of practice. The study presents *A theory of interprofessional learning and rural paramedic practice* (see Section 7.6), formed from the lived experiences of not only paramedics, but ambulance volunteers, nurses, doctors and other professionals involved in the delivery of pre-hospital care.

8.4.4 Usefulness

In this way, the *theory of interprofessional learning and paramedic practice* is useful for and relevant to everyday practice. Analysis offers interpretations based on real

life situations, and extensive researcher experience in paramedic practice. Findings are presented as constructed truths founded in reality. The theory elaborates on aspects pertaining to context and process and allows for potential adaptation beyond the rural setting.

The *theory of interprofessional learning and rural paramedic practice* contributes significantly in addressing the three research questions. The theorising of this work is useful not only for paramedic practice, but any other profession involved in collaborative practice. The study takes the investigation of interprofessional learning from the undergraduate classroom to the field of practice. It presents methodological contributions and has implication for future practice.

8.5 Study limitations

Recognition of the limitations in this research enrich the project by adding transparency and open avenues for critique and for further research. A limitation of this study is the rural basis for investigation, and the selection of one state of Australia from which to obtain data. While findings lead to the development of a grounded theory concerning interprofessional learning and rural paramedic practice, an opportunity exists for further research that can extend to other states of Australia, or even internationally. One question arises from this rural based research: will similar results appear across urban locations and can it be replicated across different rural sites?

Some episodes of collaboration described by participants do not meet the criteria for a ‘rich’ critical incident. Perhaps if participants elaborated further on those episodes of collaboration with little content, then new theoretical concepts might have emerged. Likewise, similar effects could occur with the inclusion of urban paramedics or those from different states of Australia. Although theoretical sampling proceeded according to the principles of constructivist grounded theory, where participant numbers and professions are guided by emergence of concepts and main themes, the study is limited to a cohort of 26 participants, within one Australian State. Clearly, an opportunity exists for wider investigation. Although findings represented different models of paramedic practice, participants are largely paramedics, ambulance volunteers and nursing staff; only one doctor participated.

Replication in other states or locations of this research should recruit more medical practitioners, to confirm the themes revealed.

Further to this, a large proportion of interprofessional literature concerns undergraduates and interprofessional education. The decision to investigate experienced professionals in this study leaves an opening to examine undergraduate transition from an interprofessional education setting to the application of interprofessional learning in a practical workplace setting

Some limitations to this investigation might be criticism from proponents of classical or 'Straussian' grounded theory. The use of a literature review prior to conducting investigations is limiting, in terms of classical grounded theory, in that rather than a discovery of new theory, it may influence and bias the direction of research down certain pathways (Kenny & Fourie, 2015, pp. 1273-1274). So too, from a classical perspective, Glaser (2002, p.3) argues that intimate researcher involvement in constructivist grounded theory may lead to unwarranted bias on the part of the researcher. The limitations of this study, from a 'Straussian' perspective, can be that a constructivist approach follows a less rigid form of coding. Rather than compare aspects, such as the frequency of certain codes to build theory, this project focuses on the 'richness' afforded to descriptions of specific episodes of collaboration.

Although a qualitative approach provides sound development of theory, critical incidents provided by participants concern anecdotal examples of patient care. Quantitative measurement of patient care outcome is a means by which to add an extra dimension of theoretical support, in future research.

8.6 Study strengths

Despite these limitations, this study has several areas of strength that demonstrate the findings are representative across a broad spectrum of interprofessional learning and rural paramedic practice.

The use of constructivist grounded theory to investigate paramedic practice and IPL breaks new ground. This has not previously been a methodology of use in the specific context of interprofessional learning and paramedic practice. In

combination with grounded theory, Critical Incident Technique (CIT) helps to avoid generalisation and estimation, by not imposing pre-determined categories on research outcomes. In this study, by asking about effective or less effective elements in episodes of collaboration involving rural paramedic practice, the process of CIT does not impose expectations on participant responses and allows the stories from participants to build a rich picture of interprofessional learning and paramedic practice.

Constructivist grounded theory places the researcher firmly inside the research process, rather than before or outside it. This constructivist approach accepts the shaping of knowledge through the lived experiences of both participants and the researcher. One strength of this project is that the researcher is an intensive care paramedic with over 30 + years practice across two states in Australia. This provides understanding and insight as to what participants contribute, during the interview process, and as part of data analysis.

In the use of grounded theory, theoretical sampling helps guide the selection of participants and some sites. Theoretical sampling aids in the recruitment of certain participants, including seeking at least one doctor, and the extended care paramedic (ECP) cohort. The doctor participant helps reinforce information, where critical incidents note collaboration with medical practitioners. Recruitment of the ECP cohort follows a recognition the group can offer insights into collaboration with other professionals. By using theoretical sampling, the emergence of main themes and concepts (rather than an arbitrary number of what 'might' be suitable) guides the number and type of participants.

The study's rural basis (while possibly perceived as limiting in that respect) demonstrates there are positive reports of community interaction and primary health care service provision using interprofessional teams that include paramedics. Tasmania provides the perfect opportunity to examine several different models of paramedic practice that integrate different levels of care with practitioners in pre-hospital response. This includes ambulance volunteers, to nurses working from a hospital base, to salaried paramedics and extended care paramedics. Models of practice occur across different rural classifications, from remote to inner-regional.

The decision to use rural sites also provides a source of experienced health care practitioners. This is a deliberate decision so that participants are those who would provide valuable, practical working knowledge of various healthcare settings and avoid the potential inexperience of undergraduates or interns.

Finally, although some of the findings are not new to interprofessional literature, they do provide new insight to paramedic practice, specifically the interactions and influences of interprofessional learning on this practice. Given the relatively recent formal recognition of paramedicine as a health care discipline in Australia, the findings are well timed in furthering knowledge around paramedic practice.

8.7 Recommendations

This research identifies a range of categories that influence interprofessional learning and rural paramedic practice. These categories are operational barriers, relationships and cooperation, and represent the outcomes associated with interprofessional learning, in terms of context and process. In order to add to the findings of this study and enhance interprofessional learning and rural paramedic practice, five recommendations are made.

1. Policy makers need to examine current operational aspects of ambulance services in relation to collaborative practice between different professionals. Rather than a global approach, investigation should focus on any differences between urban and rural settings.
2. Replication of this study should be undertaken in other rural settings within Australia, or internationally, to build evidence around the processes involved in establishing relationships and cooperation between different professionals in rural areas. More medical practitioners as participants will add to this evidence.
3. Dedicated study should aim at investigating potential cultural differences between extended care paramedics and more traditional models of paramedic practice in relation to interprofessional practice and patient care. In an extension of this, the resulting framework of the *theory of interprofessional learning and rural paramedic practice* can be applied to exploring organisational culture and how this influences intraprofessional practice.

4. Education providers should introduce programs directed toward supporting the interprofessional nature of rural practice for paramedics, at both undergraduate and postgraduate level. Such support would aim at increasing current undergraduate awareness of rural practice. Attention should be given to dedicated rural placement and further development of rurally oriented and specialist postgraduate education for paramedics.
5. Expansion of this study to include urban settings and undergraduates will build evidence around the processes involved in establishing relationships and cooperation between different professionals. This will also assist education providers in the development of programs, based on interprofessional learning and interprofessional practice.
6. Recent regulation of paramedics within Australia requires participation in formal ongoing professional development. The findings of this study show that inclusion and common purpose, as part of interprofessional learning, can contribute toward interdependent practice and quality patient care. Inclusion of professional development packages designed to utilise an interprofessional approach will serve to capitalise on these findings.

8.8 Concluding statement

The *theory of interprofessional learning and rural paramedic practice* proposes awareness of the context under which interprofessional learning should take place and incorporates processes involving the development of relationships and cooperation. It is from this standpoint that implications for practice arise. In questioning the ways workers from different professional backgrounds understand, interact and construct interprofessional relationships, this study proposes early and continued contact with the roles of varied types of professional, which serves not only to increase learning opportunities but also improve collaboration and enhance clinical reasoning.

Active work on behalf of professional groups serves to promote knowledge and understanding around the various roles involved in the patient care process. Running through these findings is the impact power has on the development of interprofessional learning. The resulting collaborative partnerships between rural

health care practitioners lead to an open approach to interdependent practice and patient care. Of note in this study is the existence of specialist and informal rural practices, and this, in potential combination with formal interprofessional training provides an opportunity to capitalise on the interprofessional nature of rural paramedic practice. Further research would benefit in this context, given the results of this present work show support for paramedics as belonging to a specialty of rural medicine, where interprofessional learning is second nature to practice.

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Appendices

Appendix A: Literature search – rural paramedics and IPL

Search Terms	Initial total number of papers retrieved. Search conducted May 2013 and Nov 2018 (includes duplicates, and is prior to sorting for relevance)			
	AND rural AND paramedic	AND rural AND pre-hospital	AND remote AND paramedic	AND remote AND pre-hospital
Interprofessional AND Education	18	8	7	3
Interprofessional AND Learning	11	4	6	2
Interdisciplinary AND Education	10	9	2	1
Interdisciplinary AND Learning	5	0	7	5
Shared AND Education	7	7	4	5
Shared AND Learning	7	5	3	1
Multiprofessional AND Education	4	1	2	0
Multiprofessional AND Learning	2	0	1	1
Multidisciplinary AND Education	21	21	11	3
Multidisciplinary AND Learning	10	4	6	3

Search sources:
MEDLINE via PubMed (Title/Abstract)
SCOPUS (Abstract)
UTAS Megasearch (All fields)
Journal of Interprofessional Care (All fields)
JEPHC / Australasian Journal of Paramedicine (All fields)
CINAHL (All fields)

Appendix B: Literature search – interprofessional learning

Search Term	Initial number of papers retrieved *via* UTAS 'Megasearch' facility Jan 2000 – Nov 2018 (includes duplicates, and is prior to sorting for relevance)		
	Overall	**AND Rural**	**AND Remote**
Interprofessional AND education	8548	194	18
Interprofessional AND Learning	14462	244	41
Interprofessional AND Training	4654	121	13
Interprofessional AND Practice	7822	205	79
Interdisciplinary AND Education	12774	320	78
Interdisciplinary AND Training	16682	456	162
Interdisciplinary AND Learning	16229	439	130
Interdisciplinary AND Practice	19517	427	141
Shared AND Training	21222	501	269
Shared AND Education	38281	1145	300
Shared AND Learning	38326	602	403
Shared AND Practice	46562	1092	339
Multiprofessional AND Education	924	6	0
Multiprofessional AND Learning	511	7	0
Multiprofessional AND Training	607	0	0
Multiprofessional AND Practice	812	2	1
Collaboration AND Education	35176	1444	413
Collaboration AND Learning	53870	177	54
Collaboration AND Training	22845	1125	447
Collaboration AND Practice	52577	1436	494

Appendix C: Interview excerpt - complete coding example

Date of interview: 20/06/14

Interview with ECP 1

This Interview was with an extended care paramedic with over 20 years' experience with ambulance services, prior to which he was a medic in military service.

The interview was conducted face to face in a private office. The time of the interview was just over 56 mins.

Memo
The ECP concerned was very enthusiastic about his role and the ability of ECPs to make a difference to ambulance services in regard to being able to manage patients at home and avoid unnecessary transport to hospital. One thing that stood out was that the ECP talked largely about how the services offered could help with patient outcome. A second aspect was the utilisation of other services in the provision of care.

Key to Critical Incident reference

CI
Context
Reflection
Learn

Transcript, critical incidents and In Vivo coding (in bold)	Critical incident	Process code	Focused Codes
P: Can you recall any episodes where you have collaborated with any other professionals in your work as an ECP. So this is specific to the ECP role. Basically, it is episodes of collaboration, you might want to pick out positive or not so positive episodes or might want to pick out an episode with both positive and not so positive areas. The bits around that. C: The ECP role really is revolving around keeping patients at home and to do that from an ambulance perspective our **authority is fairly restrictive, our protocols**. So that **dealing with outside agencies is imperative to the role**, to keep them at home without that hospital intervention, in keeping them away, **we really do need to talk to all sorts of people**. It was **really advantageous yesterday** I came back from leave and had a **fairly busy day, a few jobs**, and had the **opportunity to work with lots of agencies to be** honest. One of note is a fairly interesting one, a family from Afghanistan and **non English speaking**. The wife had epigastric upset that is travelling around town at the moment so **she is pretty uncomfortable** and …I was called...they called an ambulance a couple of hours before we arrived, low acuity as deemed by comms. The family got **tired of waiting** from ambulance and sought other means to get some help so they **went to the migrant resource centre** here in Launceston. So **they have got some social workers and things up there.** So the bought a **translator and a case worker** to the family to talk to them prior to ambulance arrival. They **took them to the pharmacy** got them some **appropriate medication** for her condition as they deemed . The family got…they took the pills home, they wrote them down in their native language, Afghani, or whatever, and when they got home they hadn't taken the	Non English Speaking Migrant	Diverse environment challenging personalising placing patient first working out solutions working together challenging	Working in difficult circumstances Diversity of work Involving the patient Effective working within a team

Transcript, critical incidents and In Vivo coding (in bold)	Critical incident	Process code	Focused Codes
pills and the wife remained unwell. So then they obviously rang back 000 and said we need some body. So **that is how I got involved**. So when I got there the pills hadn't obviously been touched, the wife was complaining that she was still unwell and that was made by gesticulation as opposed to voice. The husband was quite irate, he kept pointing at the clock (gesticulates) and at 'ambulance' on my badge, and pointing, and **shaking his head,** so it was **obviously a non verbal communication**. So I guess back to the question, the **outside agency was the migrant resource centre and the local pharmacy, and the local GP** who we made an appointment for to see this lady. The fellow at the migrant resource centre, I rang and said…..the reason that I knew that he had been seen was that the husband had a card, a business card, so they said **that they had been dealing with this fellow**. So I **rang migrant resource centre to get some background** on what had been happening. P: And they were pretty helpful in providing you with the background and all that sort of stuff? C: Oh yes, yes, **he spoke freely**. Yes, he though I was a neighbour to start off with, clearly **didn't understand my introduction, or I wasn't clear enough**. Once he figured out **I was from ambulance he was more than helpful**…to do some things. And I said, you know….is the translation expert available? **Just give me a call anytime you like.** So we got to an end. The **good part** about that obviously was that **resource is available to them and to us**. It **works both ways.** Them being patients and their family, and to us being there a bit. **It was interesting they didn't think the injury or illness to the wife was serious enough** to immediately take them in the car to the hospital or		diverse environment working out solutions	Satisfaction in working in a team Willingness to work together

Transcript, critical incidents and In Vivo coding (in bold)	Critical incident	Process code	Focused Codes
ring an ambulance. So **someone had made the** decision it was low acuity. P: Is this ambulance…or? C: Migrant resource. So that was interesting. Having said that, **I would agree with his determination**, that is for sure. The husband was **really concerned if it had been serious**, where would ambulance have been? It was really hard to say that we deal on individual people and priorities, **it was hard to explain that to him**. P: was there anyone there to help you? C**: No it was all over the phone**. The husband had a book. English to Afgahan while travelling! (Laughs). And he was flicking through obviously trying to show me a few things and then I said can I borrow the book, and I took the book and found a few phrases he could use. It was pretty funny actually. There was , a phrase, ' how long have you been unwell' above that was ' are you on the pill?' And I tried to point to the husband 'how long have you been unwell?' and up came 'how long have you been on the pill?' and he points at the little kid running around! **It was quite funny**! We don't come across that all the time, we will probably come across it more and more. The number that are Afghani and don't speak any English in our community is pretty interesting. P; Have you dealt with that sort of thing before in the role? C: Yes, we have got **lots of different nationalities** in Launnie and the common people that are here, the people from the…Bhutan or Nepal, are really **quiet unassuming people** and they seem to have some family come in and they just migrate here. One of the Nepalese families the	Non English speaking migrant 2	personalising	Involving the patient

Transcript, critical incidents and In Vivo coding (in bold)	Critical incident	Process code	Focused Codes
wife was pregnant and hyperemesis, and as an ECP **that was just nausea and vomiting directed to us**. Once I figured out, and it was her third child, and she had been unwell with a hyperemesis. Again **I went through a telephone (exaggerates) interpreter service** to help us there because non of the families, the grandmother, the husband, the wife and there were two small children so **none of them spoke very good English.**		working together	
And she was able to be kept at home so I just treated her at home, **made the appointment with the GP**, obviously for pre natal checks but also to get some control on the hyper emesis.		working out solutions referring	Influence of communication
P: And you are obviously able to get a message across using those services?			
C: **I certainly come back and laugh, you know about our wording or some of our gesticulations or things, but yeah, yeah.**			
P: You mentioned in both of those about making an appointment with the doctor, how did you convey that?		communicating	
C: I had a translation person with me each of the times. **So..are you available to see the doctor?**		communicating	Influence of communication
So then I guess that in itself is a bit of an issue because getting new patients into GPs is fairly difficult even in the local area. **We didn't have any problems.** Which was really good. **I explained to the receptionist, we didn't have any problems.**		communicating	
I have had problems with AMC students who are English speaking students, here studying obviously, and they have called the ambulance….probably….a toe infection or something so it was down the ECP line, needed some antibiotics or something. I said **have you**			

Transcript, critical incidents and In Vivo coding (in bold)	Critical incident	Process code	Focused Codes
tried getting into the local GP, he said they just won't take any new patients. And yeah, whilst I have had issues with AMC students, English speaking, **I have had none of those issues with our migrants. Interesting.** P: Yes. You also mentioned the chemist in that… C; The pharmacy. P: That was the general pharmacy was it? C: Yes, we were at Mowbray so we aware in one of the pharmacies next to the doctors surgery there. So **initially the migrant resource centre took the husband and an interpreter into the pharmacist, spoke about what was going on and got some appropriate pills.** So then I went back to the pharmacist and said **thankyou** but I will take what you have obviously, cause that is what I would have used anyway, but I will give an injection as opposed to just…because they are vomiting tablets don't really cover it so they do need an injection. **I didn't ask the question, but probably appropriate why he didn't follow up the ambulance side of things, or a GP at the time**. P: So you were speaking to the pharmacist? C: Yes. **Went into see him. I went into the family, talked to them and got everything sorted and went back to the pharmacy.** *Interview continues……*		placing patient first communicating	

Appendix D: List of Critical Incidents

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Airway training Paramedic at new station requested by hospital staff to demonstrate basic airway management.	Hospital staff unaware of paramedic guidelines	Raised profile of ambulance. Less effective was the limited time to achieve training. No pre-warning. One nurse thought was training encouraging hospital staff to use ambulance protocols.	Hospital staff and GP learnt more about ambulance roles and guidelines.
Anaphylaxis Treatment of anaphylactic patient by volunteers backed up by flight paramedic. Difficult case. Use of black humour.	Different levels of paramedic response. Different guidelines.	Language used could have been perceived as rude. Positive effect in use of humour to lighten situation.	The use of humour can act to reduce stressful situation. But needs to be perceived as such.
Antibiotics for abscess Paramedic consulting with GP to allow antibiotic treatment for patient with dental abscess	Paramedic liaison with GP for treatment	Previous experience with same GP had led to refusal for treatment. Making suggestion rather than request let GP make final decision in favour of treatment.	Some decisions are political ie; GP knows best. Finding a way to allow 'senior' staff to be the decision maker may achieve satisfactory outcome.
Application of collar Applied cervical collar due to pain and mechanism of injury	Paramedic critical of volunteer decision.	Different staff may not be aware of other's guidelines and may be critical. Positive aspect is that following guidelines is appropriate.	Rather than being critical, a better approach would be to learn why an approach had been taken.
Arrest at hospital Paramedic assisted with cardiac arrest at hospital	Request from hospital staff for paramedic to assist. Doctor with limited emergency experience	Acceptance of hospital staff of paramedic abilities. Realisation of all staff about own limitations.	Constant interaction with others helps build acknowledgment and acceptance of the practice of others.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Asthma arrest Respiratory arrest at hospital	Paramedic assist at hospital	Staff at hospital appreciated ambulance assistance. Paramedic able to work with hospital staff. No negative aspects. Staff appreciated post event debrief with paramedic.	Acknowledgement of each other's roles allowed process to proceed smoothly. Level of care extended from initial clinical to involve social & emotional aspects.
Car crash with SES (State Emergency Service) Paramedic attendance at vehicle crash with multiple services	Multiple services. Effective assistance available due to prior knowledge of each other's roles and skills.	Because of previous combined training police were able to travel with paramedic and provide assistance. Lack of familiarity sometimes hinders assistance.	Prior group coaching and training increases efficiency. Lack of familiarity has drawbacks but other cooperative benefits can be utilised with correct approach.
Cardiac arrest Cardiac arrest with volunteers/nurses and paramedic	Difficult scenario with critical care patient at home. Pt wishes to die were known to staff attending but paramedic did not heed advice.	Paramedic unknown to volunteer staff and nurses. Officious tone by paramedic led to other staff not being listened to. Prior to paramedic arrival team approach to care was working well.	Team approach depends on communication skills and to some extent prior knowledge of team members.
Case with police Paramedic asked police to assist with bust case load	Psychiatric patient and medical emergency at same time. Paramedic asked if police could manage initial approach with first.	Prior knowledge of other professionals assists in patient care. Teamwork approach with joint decisions beneficial.	Team approach depend on prior knowledge of other roles, communication and joint decision making.
Chest injured patient Volunteer crew attending hospital with chest injured patient	Abrupt response by nurse in charge to volunteer crew regarding difference in treatment protocol	Most approaches to hospital staff are positive. Some staff are dismissive of others and other guidelines.	Knowledge and acceptance of other roles and guidelines can assist in harmonic relationships as well as patient care.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Chest pain Volunteer assisting nurse with chest pain patient	Nurse unsure of ambulance guidelines	Difficult to question treatment given by person in senior position. Diplomatic approach assists in teamwork approach.	Recognition that learning is always present regardless of skill level.
Child drowning Initial attendance of police, backed up by paramedic	Stressful situation, good working relationship between all team members	Acceptance of skills of others leads to effective approach. Positive feedback to initial carer.	Stressful and difficult situations are well served with positive and constructive feedback.
Child with respiratory problems Three year old with respiratory difficulties.	Initial attendance by volunteer with nursing experience. Remote area. Backed up by experienced volunteers.	Previous experience in other medical field aided in building confidence. Remote areas face long time periods before more experienced backup. Issues in keeping skills maintained in remote areas.	There is a need to keep skills maintained in remote areas in order to build confidence. Extra qualifications/experience can be of benefit.
Chronic patient Ambulance care to chronic patient with blood pressure problems fed back to community nursing.	Patient taken to major hospital but paramedic informed local heath care services of care given.	Ambulance care often fed back to hospital staff so that follow up can be made. Allows all staff the be aware of conditions. Similar feedback is often not forthcoming in larger areas.	Responsibility of paramedic staff to give feedback in order to enhance overall patient care.
Clinical placements Clinical placements of paramedics in other departments to build all round care.	Formal ECP paramedic training with community nursing, accident & emergency, palliative care.	Allowed for an all-round knowledge of other roles. Some roles (palliate care) had large infield practice but little placement experience.	Pre-practice experience of other roles allows for greater understanding and enhances liaison confidence.
CPR (Cardio Pulmonary resuscitation) in mine Paramedic called to assist CPR being performed in mine	Paramedic restricted in access to patient by OHS rules of mine site.	Rules are in place to protect team members. Can be frustrating for attending personnel.	Different types of emergency carer can be protective of own turf. More effective joint interaction and training may help break down barriers.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
CPR with TFS (Tasmanian Fire Service) TFS commenced initial CPR on car accident victim	Fire crews first responded to patient needing CPR in car accident. Formal mental health peer support offered. Informal clinical debrief by paramedic.	Formal support mechanisms for difficult cases only designed for mental health. Clinical feedback can also help build confidence and coping mechanisms. Some personnel lack people skills.	Feedback is important in being able to build knowledge around roles and increase confidence and coping with difficult cases.
Critical assault Paramedic assisted doctor and nurses with head injured patient.	Rapid deterioration of patient. Patient initially not on scene but assisted, adopting a calm approach in a hectic environment.	Disorganised approach can lead to poor decision making. Feedback helped build an overall appreciation of all care given. Other staff will take guidance without being seen as a takeover.	Calm, reassuring approach can help build confidence and enhanced teamwork. Feedback can assist building a background for such an approach.
Dangerous patient Transport of patient from vehicle accident who became violent	Patient began demanding morphine and threatening paramedics. Female nurse crew member felt reassured by presence of male staff.	Some degree of security offered in gender roles, but this is built on by personal relationships. A lack of joint training and experience may hold back building such relations.	Building relationships helps build confidence with other professionals. Some security is offered in gender roles but also relationship roles.
Doctor assisting Paramedic calling on local doctor to assist at scene	For difficult cases paramedic is able to call on doctor to provide extra assistance. Prior awareness of paramedic skills and drugs due to joint education sessions.	Joint education is able to provide all professionals with awareness of others' roles and skills. No negatives mentioned.	Cooperative approach and willingness to involve others leads to enhanced care.
ECP (extended care paramedic) nursing home liaison Liaison with nursing home homes to promote role of ECPs	ECP being a new role little knowledge existed around care that could be offered.	Negotiation was very positive with little frustration. Good communication between all involved avoided task being a burden. Joint working through any issues that arose.	Feedback is essential in building professional relationships. Identifying roles and accepting the assistance that all can give will enhance patient care.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
ECP referral to HALT (Hospital Aged Care Liaison team) ECP referral of patients to aged care teams.	Acceptance of aged care liaison teams to new ECP roles. Initial development by working together.	Little feedback on patients from regular ambulance crews. Leaves gaps in care process. ECP feedback helps facilitate care from all appropriate services.	Working with others sets a background for understanding roles. Learning other roles enhances feedback and patient care.
ECP working with HALT ECP paramedic working in conjunction with hospital aged care liaison team (HALT).	HALT staff unaware of new ECP roles. Paramedics unaware of HALT roles.	Worked around red tape of allowing staff other than nursing/medical to do joint training in hospital.	Demonstrated that flexibility in training can increase team dynamics.
Exercise with SES Training exercise between various emergency services.	Criticism by police officer at exercise. Inference that critical comments were fed by senior nurse at hospital and aimed at ambulance volunteers.	Anger that actions of one person could undermine joint training.	Didn't speak up at time, and so incident served to drive wedge between services.
Fall from tree Critically ill patient bought into local hospital by ambulance volunteers	Some confusion in communication from scene. Misunderstanding of roles of volunteers by senior nurse resulting in criticism of volunteers.	Treatment of volunteer by one nurse was without regard for understanding of roles.	Wrong communication, or severe criticism can lead to isolation of team members.
Febrile patient in nursing home ECP attendance at nursing home for febrile patient. Consultation with GP for treatment.	GP unaware of role of ECP. Despite good handover of patient condition was unprepared to tale advice of ECP for management at residence.	Failure to take advice from ECP resulted in unnecessary and uncomfortable transport to hospital.	Greater communication between staff and role awareness will aid in patient care.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
First MVA (motor vehicle accident) Nurse acting as ambulance volunteer attending first motor vehicle accident.	Challenging road accident. "Baptism of fire"	Tentative and unsure of how care management had progressed at scene.	Good feedback eliminated doubt and built confidence for teamwork.
Football injury Critically injured patient with facial fractures bought to local hospital	Two patients at hospital both requiring urgent transfer by ambulance.	Rapid decision making to transfer most serious patient first. Good outcome involving relatives as well as medical staff.	Attention to social situations as well as medical form part collaborative decision making.
Fractured femur Fractured femur requiring pain relief	Hesitant when first using pain relief but developed confidence to educate medical staff on later occasions.	High workloads in rural areas can lead to greater confidence.	With practice and confidence, the ability to transfer knowledge is increased.
Fractured humerus Advice given by doctor on how to assess for dislocation	Paramedic aware that different terminologies exist between professions, that can serve as barriers.	Some medical staff you can learn from, others place barriers.	Good explanation by doctor was able to encourage new learning by paramedic.
Fractured skull Attendance to patient in potentially violent situation.	Female volunteers asked to attend while police and another paramedic stood outside.	Females felt unsafe about being placed in that situation by male colleagues.	Need to communicate early in order that situations do not escalate. Do not be afraid to approach other team members.
Haematuria Patient requiring pain relief beyond paramedic protocol. Consult with GP.	Paramedic recognised need for further care. Consult with GP and then ambulance service to allow this.	Working in isolated areas there is a need for greater communication between professions.	Communication and cooperation between professions will benefit patient care.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Haemorrhage Paramedic assisted nursing staff in hospital to manage haemorrhage.	Doctor 20 minutes away. Nurses unsure and unable to instigate care without doctor's orders.	Other staff were easy to work with in difficult situation.	Leadership can be shared between different professionals given acceptance of roles.
Head injured teen Paramedic assisted with care of head injured patient in hospital.	Physical and medical assistance offered by paramedic.	All staff tended to work together without conflict.	Good communication and cooperation between professionals leads to effective teamwork.
Hit by taxi Nurse/volunteer observed other crew treat motor vehicle accident victim.	Paramedic crew treated patient without placing cervical collar or using spine board. Conflict of care.	Seems to be different rules for different professions. Communication was not good and recognised a lack of assertiveness to make a point about patient care.	Need to be assertive and take leadership if recognising potential errors in care.
Horse trainer Critical head injured patient bought into hospital by family.	Paramedic assisted doctor with care in hospital. Took control and assisted with trauma care.	Paramedics have a greater level of confidence and skills levels than observed in other places. Appreciated assistance and calming nature.	Care is directed medically, but also socially. Learning roles of others is able to enhance the confidence in overall delivery of care.
Major trauma Nurse working in remote hospital describing working with paramedics on trauma patient.	Awareness of paramedic roles and abilities from previous contact.	Building relationships helps create an background conducive to communication.	Communication can affect patient outcome. Especially in remote areas.
Mental health patient Nurse using paramedics for protection with mental health patient.	Realisation of dangers involved in isolated area with mental health care.	Call on paramedic assistance more for protection rather than medical assistance.	Roles extend beyond clinical practice.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Mining accident Patient in mine shaft with broken ankle.	Mining operations have own first response capability. Paramedic role is on surface only.	Despite restrictions between workplaces, patient care can still progress.	Treating others well will enhance future relationships.
Motorbike accident Volunteer/nurse attendance at motorbike accident with paramedic backup.	Criticism of nurse by paramedics not at scene.	Did not speak up to criticism but did seek reassurance from another paramedic.	Communication and respect are essential for effective collaboration.
Multi car MVA Multiple patients and services at motor vehicle accident.	All services able to work together. Some doubts around care were dealt with on scene with immediate feedback.	The ability and confidence to give advice was able to enhance patient outcome.	Regard for other roles and the time to listen and accept advice enhances outcome.
Multiple patients Volunteer attendance at motor car accident with several patients and other services.	Volunteer offered advice on transport to helicopter crew but was ignored.	Despite providing excellent care sometimes others have different opinions. This is especially so between different hierarchy levels.	Need to be more forceful in communication.
Multiple patients at A&E (accident & emergency) Several patients attended rural A&E at same time.	Resources stretched to overcapacity. Paramedics able to assist in providing care.	In times of need paramedic staff may be able to assist in the hospital environment. Provided a calming influence.	A calm, relaxed attitude from one profession is able to influence how other professionals will perform.
Multiple services some confusion Multiple services at road accident.	Some confusion around roles due to several professionals wearing different ‘hats’.	Able to work together on individual basis, but official rules tend to create some confusion between professions.	Different protocols between professions can create confusion. Need to create awareness of individual rules & regulations.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
MVA in paddock Vehicle accident with several services in attendance.	Paramedic crew attending had good knowledge of case prior to arrival due to radio communications. However, some unnecessary communication was also present.	Need awareness that overcommunication can prove to be a barrier to effective care.	When communication with others keep messages simple and concise to avoid confusion.
MVA with SES Patient with severe injury attended by ambulance and SES.	Volunteer in attendance had both ambulance and SES experience.	Crossover in professions is able to provide an extra insight to patient management.	Knowing and experiencing different roles can assist in patient care, and eases tension when attending complex cases.
Non-English-speaking migrant ECP working with family, migrant resources and pharmacy to help resolve medication issues	Migrant resources were a new service for ECP to work with. Pharmacist was unaware that paramedics could organise medication assistance.	Initial reluctance to involve a service like migrant resource was proved false, as this proved essential in management of this case.	Widening resource base from 'usual' health care professionals will benefit patient care.
Non-English-speaking migrant 2 ECP use of interpreter service to help with language difficulties	Interpreter service was not a usual contact for paramedics	Community at large incorporates many non-English speaking people and have to widen resources.	Widening resource base from 'usual' health care professionals will benefit patient care.
Overdose Overdose patient managed by paramedic, volunteer and police	Police assistance required due to patient becoming non-compliant and combative toward care.	In isolated areas paramedic usually does not have any problems when requesting police assistance, although some can aggravate rather than assist situations.	There is an interdependence on other services in rural areas.
Palliative care pathology Palliative care patient requiring transport by ECP	Transport could have been avoided if the mechanism for simple blood testing was available.	GP in charge of ECP program continually refused requests to allow blood testing. This was seen as obstructive and unnecessary.	Hierarchy between professions can set up blockages in how care is managed.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Patient falling through roof Patient with head injury 3 hours from hospital.	Long transport time. Only assistance from volunteer. Requested helicopter assistance but refused by communications.	Sometimes others have little respect for judgement.	Need for greater communication and acceptance of decision making between professionals.
Patient in retirement home ECP assisted with care of elderly patient in nursing home	Nursing home staff initially unaware paramedic was an ECP and initially not helpful. Opened up when aware of role.	A difference between on road and ECP roles in that a different level of acknowledgement.	Awareness of roles helps communication and working relationships. Nurse had learnt of ECP roles previously.
Patient meeting Paramedic attending patient care meetings at local hospital	Hospital staff were accepting of paramedics attending patient care meetings	Paramedic is able to offer advice such as home environment that others are not aware of.	Acceptance of advice of others is able to assist in overall care of patient.
Patient transfer Doctor relaying experience with arranging transfer through ambulance service.	Considerable delay in transfer of sick patient from GP surgery due to unavailable ambulance crews.	Paramedics will usually show up and offer excellent assistance when required.	Some systemic problems in rural areas with operational demands overriding patient care demands.
Patient with burns Patient with burns to both legs requiring dressings	Patient already had dressings in place. Was requiring new dressings due to getting dirty. On weekend and unable to contact regular nursing services. Finally contacted ambulance.	Other medical staff initially unaware of roles of ECPs	After awareness of ECP roles, ECP was dispatched with good outcome. Similar would apply in future with new awareness.
Poor behaviour New female volunteer terrified by driving of experienced volunteer	Male experienced volunteer seemed to take pleasure in scaring new female volunteer	This particular volunteer often took pleasure in projecting an image of superiority	Only way to address such behaviour is to report to senior personnel.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Possible trans ischaemic attack Volunteer crew transported patient with TIA to local hospital	Criticism by nurse to crew on why they had taken patient to local hospital despite only being 200m from hospital	Most nursing staff are good however some problems with others who adopt superior attitudes based on rank.	Hierarchy can sometime get in the way of congenial relations and patient care.
Pregnancy Experienced volunteer with new nurse at scene of pregnant woman	Advice that patient had also possibly ingested lead from tank water. Nurse was very anxious about attending but volunteer managed to provide calming influence	Nursing staff and volunteers tended to accept different skills levels and work as equal team members.	Where different skills levels are accepted with no adoption of superior attitudes harmonious working relationships can be promoted, each participant bouncing information off each other.
Patients bought to clinic Paramedic bought critical patient to local clinic for stabilisation	Patient with heart attack in remote area bought to clinic to seek assistance from nurse in stabilisation.	In remote areas there is a dependence on teamwork in order to provide more effective care.	Communication and feedback will assist effective teamwork.
Pulmonary oedema Patient self-discharged from local hospital ended up with ambulance call one hour later	Patent ended up critical and taken by ambulance to urban hospital. Died later that day. Paramedic provided feedback to local hospital.	Feedback from paramedics around patient care is often appreciated by treating hospitals.	Learning by hospital staff from feedback given by paramedic around the care given following discharge.
Rib injuries Patient with rib injuries taken by volunteer crew to local hospital	Accepting nurse very rude to treating volunteer in regard to care given. Volunteer queried his role within the service. Treatment not wrong but protocols different between hospital and ambulance.	Some staff have different attitudes, but superior attitudes and unnecessary criticism provides no effective purpose.	Nurse participant learnt that a more effective way to manage possible differences in protocol is to seek information about different care levels and listen to handovers.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Road accident Nursing staff attended road accident with paramedic	Expecting several patients but turned out to be no critical injuries.	Nursing staff appreciated assistance from paramedic with training exercises at hospital.	Stressful initial case, learnt from paramedic that to adopt a calm approach will assist in clear thinking and patient care.
Roll over Attendance of volunteer crew at vehicle rollover.	Off duty paramedic at scene provided initial assessment and treatment then left scene. Second paramedic crew proceeded to criticise volunteer crew for inadequate care.	Proper assessment given by first at scene however no one able to stand up to subsequent critical and unfair criticism.	Different individual personalities and attitudes can either assist or hinder effective team management.
Rude paramedic Paramedic attending scene initially attended to by volunteer crew criticised volunteers for not wearing safety vests at road accident.	Criticism given without any initial introduction or reasoning.	A lot of interaction comes down to experience and social skills of individuals.	Effective care and teamwork can be disrupted by not taking time to introduce self and listen to handover of care.
Septic patient Paramedic administered antibiotic therapy for septic patient against protocol.	Aware of new upcoming changes to protocols and administered drug. Later criticised by clinical supervisors.	In rural areas there are often little opportunities to bounce ideas of care off others.	Misunderstanding of clinical supervisors around new guidelines. In order for care to be effective need to provide feedback about changes to all staff.
Severe sob Severely short of breath patient in hospital attended to by paramedic and hospital staff.	Critical patient attended to by medical team but eventually died. New doctor happy to stand back and let paramedic take charge.	Personalities where each work well together provide effective care.	Leadership can take various forms from active care to standing back and instructing. All can work together in the same scenario.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Shooting Paramedic attending patient shot to head with nursing staff.	Case turned out to be simpler than expected with minimal care required. Still emotional due to expectations prior to attending.	Attendance with paramedic to pre-hospital cases always presented with calming influence.	Main learning was around the calming influence that would assist teamwork approach. Also feedback around care with report writing in regard to possible police investigation.
Snake bite Volunteer crew attended snake bite victim.	Despite correct treatment by volunteers, paramedic crew provided different treatment at odds with volunteer treatment.	Some confusion exists around guidelines between different professional.	Feedback around different care guidelines is essential in order to avoid confusion.
Social situation Paramedic attended rural patient who required transport to hospital.	Initial transport arranged to urban centre but due to social situations a consult with local hospital meant that patient could be accepted at closer rural hospital.	Care does not stop at clinical level.	If unaware of resources cannot utilise them.
Supra pubic catheter in quadriplegic ECP attended patient requiring supra pubic catheter replacement	Care initiated by community nurse who was unable to change catheter. Nurse previously aware of role of ECP.	Different services are able to work together to provide effective patient care treatment and planning.	Prior awareness of roles is able to benefit overall teamwork and patient care.
Suturing nursing home patient ECP called to transfer patient requiring sutures to hospital.	Nursing home staff unaware ECP could suture, but even after explanation still required transport due to policy of home.	For policy to change all need to be aware of new guidelines and changes.	On subsequent visits ECP skills were accepted. This was due to feedback and information sessions by ECP on new guidelines.

Critical incident name (n=75) and description	Context (allow inferences and prediction)	Reflection	Learning
Teen with fracture Patient with fracture taken to local hospital.	Paramedic informed hospital beforehand. Radiographer present but no medical staff. Paramedic assisted radiographer to help expediate further treatment.	Unaware of outcome if had not assisted radiographer but was confident that care had helped provide a more rapid treatment process.	Building up prior relationships and trust can assist in team interaction. Acceptance that team members may involve more than traditional medical persons.
Unwell girl Paramedic attending critically ill girls with unknown medical condition.	Correct assessment and treatment by paramedic prior to arrival of helicopter. Paramedic was later criticised by management for using helicopter resources.	Previous working with helicopter crews meant that paramedic was able to adequately prepare patient for flight prior to arrival of helicopter crew.	Awareness of roles was able to expedite and assist in patient care process. Unnecessary criticism from supervisors not involved in care can create unnecessary stress and questioning of correct treatment regimes.
Volunteer training session Feedback from volunteer who had undertaken initial training course.	Volunteer had previous nursing and educational experience. Quite critical about training given without placing of any context or explanation.	Course would have been more beneficial if some context had been provided. Often questioned own prior knowledge to poor teaching.	Can be difficult to teach people who come from different background but need to make allowances for different prior knowledge.
Working with doctor Volunteer attended road accident. Doctor in attendance.	Volunteer suggested to doctor correct spinal care management.	Felt reassured that doctor freely accepted advice from volunteer without question.	Professional hierarchy is part of normal working relationships but does not necessarily mean it obstructs a teamwork approach if participants communicate and accept advice from each other.

Appendix E: Ethics approval

Office of Research Services
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Facsimile + 61 3 6226 7148
Email Human.Ethics@utas.edu.au
www.research.utas.edu.au/human_ethics/

HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

22 February 2013

Assoc Prof Tony Barnett
C/- UTas

Sent via email

Dear Assoc Prof Barnett

REF NO: H0013050
TITLE: Inter-professional Learning and Paramedic Practice

PROTOCOL
Collaboration Reporting Form
Information Poster
Information Sheet
Interview Schedule
Invitation to Participate
Letter to Ambulance Tasmania CEO
Letter to Director of Nursing
Letter to Other Participants
Low Risk Application Form

The Tasmania Health and Medical Human Research Ethics Committee considered and approved the above documentation on **21 February 2013**.

This approval constitutes ethical clearance by the Health and Medical HREC. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities are required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

All committees operating under the Human Research Ethics Committee (Tasmania) Network are registered and required to comply with the *National Statement on the Ethical Conduct in Human Research* (NHMRC 2007 updated 2009).

Therefore, the Chief Investigator's responsibility is to ensure that:

(1) The individual researcher's protocol complies with the HREC approved protocol.

(2) Modifications to the protocol do not proceed until **approval** is obtained in writing from the HREC.

(3) Section 5.5.3 of the National Statement states:

Researchers have a significant responsibility in monitoring approved research as they are in the best position to observe any adverse events or unexpected outcomes. They should report such events or outcomes promptly to the relevant institution/s and ethical review body/ies and take prompt steps to deal with any unexpected risks.

The appropriate forms for reporting such events in relation to clinical and non-clinical trials and innovations can be located at the website below. All adverse events must be reported regardless of whether or not the event, in your opinion, is a direct effect of the therapeutic goods being tested.
http://www.research.utas.edu.au/human_ethics/medical_forms.htm

(4) All research participants must be provided with the current Patient Information Sheet and Consent Form, unless otherwise approved by the Committee.

(5) The Committee is notified if any investigators are added to, or cease involvement with, the project.

(6) This study has approval for 4 years contingent upon annual review. A *Progress Report* is to be provided on the anniversary date of your approval. Your first report is due 21 February 2014. You will be sent a courtesy reminder closer to this due date.

(7) A *Final Report* and a copy of the published material, either in full or abstract, must be provided at the end of the project.

Should you have any queries please do not hesitate to contact me on (03) 6226 2764.

Yours sincerely

Lauren Townsend
Ethics Administrator
Office of Research Services
Tel: +61 (03) 6226 2764
Email: Lauren.Townsend@utas.edu.au
University of Tasmania
Private Bag 01 Hobart Tas 7001

Appendix F: Site Details

SITE A

General Structure	
Multi-Purpose Centre 4 Sub-acute beds, plus residential aged care and community services University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. Regular use of locums due to staff shortages Local GP available in 30 mins, 24 hr on call
Population and Geographical data	
AGCS-RA	Very Remote
Nearest alternative service centre	40 minute flight to Launceston General Hospital 75 minute flight to Melbourne
Nearest major hospital	As above
Size of population	200 in 2010
Emergency Response Capability	
Ambulance support	Volunteer only, air ambulance
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP First line management of obstetric and paediatric emergencies

SITE B

General Structure	
Regional Hospital 10 Sub acute beds, 2 emergency care beds, 15 aged care beds, 1 respite bed. Community services University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. Local GP available in 15 mins, 24 hr on call
Population and Geographical data	
AGCS-RA	Remote
Nearest alternative service centre	55km by road to Community Health Centre
Nearest major hospital	260km to Royal Hobart Hospital 187km to North West Regional Hospital, Burnie
Size of population	5251 in 2010
Emergency Response Capability	
Ambulance support	Paramedic / Volunteer
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP 24-hour paramedic via Ambulance Tasmania First line management of obstetric and paediatric emergencies

SITE C

General Structure	
Multi-Purpose Centre 4 Sub acute beds, plus residential aged care and community services University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. RNs train as ambulance volunteers Local GP co-located, 24 hr on call
Population and Geographical data	
AGCS-RA	Outer regional
Nearest alternative service centre	49 min drive to next Multi Purpose Centre
Nearest major hospital	70km to Royal Hobart Hospital
Size of population	6146 in 2010
Emergency Response Capability	
Ambulance support	RNs train as Ambulance Volunteers
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP Ambulance response provided from hospital

SITE D

General Structure	
Multi-Purpose Centre 20 Sub acute beds, plus 29 residential aged care. Community services University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. Regular use of locums due to staff shortages Local GPs available in 15 mins, 24 hr on call
Population and Geographical data	
AGCS-RA	Outer Regional
Nearest alternative service centre	68km to Launceston General Hospital
Nearest major hospital	As above
Size of population	7355 in 2010
Emergency Response Capability	
Ambulance support	Paramedic / volunteer
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP 24-hour paramedic via Ambulance Tasmania Can provide first line management of obstetric and paediatric emergencies

SITE E

General Structure	
Multi-Purpose Centre Sub acute beds, plus residential aged care. Community services. University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. Regular use of locums due to staff shortages Local GPs available in 15 mins, 24 hr on call
Population and Geographical data	
AGCS-RA	Remote
Nearest alternative service centre	83km to North West Regional Hospital Burnie
Nearest major hospital	As above
Size of population	8263 in 2010
Emergency Response Capability	
Ambulance support	Paramedic / volunteer
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP 24-hour paramedic via Ambulance Tasmania Can provide first line management of obstetric and paediatric emergencies

SITE F

General Structure	
Multi-Purpose Centre 10 Sub acute beds, 4 Emergency Department beds, plus residential aged care. Community Services. University Department of Health teaching site	
Nursing and Medical Staffing	1 RN and I EN minimum per shift. Regular use of locums due to staff shortages Local GPs available in 15 mins, 24 hr on call
Population and Geographical data	
AGCS-RA	Outer Regional
Nearest alternative service centre	35km to Nearest Community Health Centre
Nearest major hospital	167km to Launceston General Hospital
Size of population	6514 in 2010. Population increases in summer
Emergency Response Capability	
Ambulance support	Paramedic / volunteer
Emergency response	Intermediate life support by RN 24-hours 24-hour on call GP 24-hour paramedic via Ambulance Tasmania Can provide first line management of obstetric and paediatric emergencies

SITE G

General Structure	
Community Health Centre Community based primary health care provided by registered nurses and visiting GP	
Nursing and Medical Staffing	2 or more RNs during business hours 2 RNs on-call 24-hours. Clinical support provided to ambulance service Visiting GP twice per week
Population and Geographical data	
AGCS-RA	Outer Regional
Nearest alternative service centre	Royal Hobart Hospital via road and boat
Nearest major hospital	As above
Size of population	600 in 2010 Population increases considerably in peak holiday periods
Emergency Response Capability	
Ambulance support	Volunteer Helicopter
Emergency response	Intermediate life support by RN 24-hours Visiting GP 2 days per week only Volunteer ambulance with air ambulance support

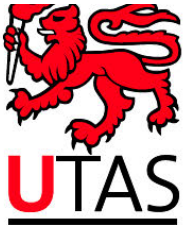
SITE H

General Structure	
Extended care paramedic	
Staffing	3 available ECPs. 1 per day working 11 ½ hour shift No replacement for short term absence
Population and Geographical data	
AGCS-RA	Cover from Inner to Outer Regional
Nearest major hospital	Launceston General Hospital
Size of population	106,153 in 2010 (Launceston area)
Emergency Response Capability	
Ambulance support	Extended Care Paramedic
Emergency response	Intensive Care Paramedic with extended care qualifications

Appendix G: Information statement

Locked Bag 1372 Launceston
Newnham Campus, Launceston
Tasmania Australia 7250
Telephone (03) 6324 4000
Facsimile (03) 6324 4040
Email rural.health@utas.edu.au

Information Sheet
Version 1.0
7 January 2013



UNIVERSITY DEPARTMENT OF RURAL HEALTH

UNIVERSITY OF TASMANIA

Inter-professional learning and Paramedic Care

This is an information sheet for participants in this study

Invitation

You are invited to participate in this study of inter-professional learning and paramedic care.

This project forms a PhD research study through the University of Tasmania's Department of Rural Health. The project commenced in 2011 and planned for completion in 2018.

It is being conducted by University of Tasmania PhD candidate Peter Mulholland who is an Education Coordinator with Ambulance Tasmania. Project supervision is by Associate Professor Tony Barnett and Dr Jess Woodroffe, both of The Department of Rural Health, University of Tasmania.

What is the purpose of this study?

The project addresses gaps in the knowledge around paramedic care and inter-professional learning. This research will describe inter-professional learning involving paramedic care in terms of learning outcomes and patient benefit, and develop recommendations for inter-professional learning that can contribute to enhanced knowledge of paramedic practice and service delivery.

Why have I been invited to participate?

Your perspective and involvement with paramedic care in rural Tasmania is considered to offer valuable insight to this important area.

Your participation in this study is voluntary.

What will I be asked to do?

If you decide to participate, you will be asked to undertake an interview estimated to last 40 to 60 minutes. The interview will ask you to describe situations whereby you have collaborated with another health professional. You will be asked to elaborate on what you view as effective and less-effective aspects of this collaboration by responding to the following questions:.

1. Can you describe situations whereby you have undertaken collaboration with another health professional? (For non-paramedics this question will ask about collaboration with a paramedic)

2. What were effective aspects about these situations?

3. What aspects about these situations were less effective?

4. Are there any more details you would like to offer concerning situations of collaboration?

The interview will not gather personal information, and is not concerned with examination of protocols or guidelines. Should you agree to participate the interview will be arranged for a time and location convenient for yourself.

The interview will be taped with your permission, transcribed for analysis, and combined with other information to answer the research questions. You will be given the opportunity to review transcripts of your interview. All interviews will be de-identified and coded for anonymity.

In order that this research is around recent collaborative situations you will be asked to complete a collaboration reporting form which I will supply at least two months prior to your interview. This form will allow you to record types of situations where you have collaborated with others in the care of patients. The form will require minimal personal effort, and will not ask for identifying information about yourself, other personnel, or patients. The purpose of the form will be to allow you to recall recent collaborative situations at the time of interview. I will collect these forms at the time of interview.

Are there any possible benefits from participation in this study?

The information you provide will help interpret and describe the ways by which different personnel are involved in inter-professional learning incorporating paramedic care in rural Tasmania, and to propose key ways forward for implementing and sustaining inter-professional education, practice, and learning in the rural setting.

Are there any possible risks from participation in this study?

As a registered health care professional, the researcher is mandated to report some events (e.g child abuse) should they be reported. When you consent to participate in this study, you acknowledge this requirement.

Should you experience any distress during the interview the interviewer will terminate the interview if needed. The interviewer will provide contact details for counselling services, two of these being Anglicare (1800243232) and Centacare (Hobart 6278 1660, Launceston 6332 0600).

Your decision whether or not to participate will not prejudice your possible future relations with the University of Tasmania, your employing ambulance service, or any other employer. There will be no payment or consideration made in recognition of your participation.

What if I change my mind during or after the study?

Being in this study is voluntary and you are under no obligation to consent to participation. If you do consent to participate, you will be given the opportunity to review and edit a transcript of your interview. You may not withdraw information from the interview once you have agreed on the transcript and given permission for its use.

What will happen to the information when this study is over?

Data gained from this research project will be securely stored at the University of Tasmania Department of Rural Health for a period of 5 years after publication, and electronic

information password protected. Audio tapes of interviews and transcripts will be securely stored in a locked office. Raw data will be destroyed after this 5 year period.

Hardcopy data will be shredded and disposed of. Electronic copy will be deleted.

How will the results of the study be published?

The findings of this study will form the basis of a PhD thesis, which will be printed and available through the University Of Tasmania. Reports of the study may be submitted to government agencies and for publication. Individual participants will not be identifiable in such a report/journal article or in future studies conducted by the researchers. Participants will be notified of completed findings and publications via email, or in writing, and will be provided with details on how to access findings or publications electronically eg. Internet web URL. Hardcopies will be provided on request by participants.

What if I have questions about this study?

I will be most happy to provide further information should you wish to contact myself by phone or email. You can also feel free to make contact with my supervisors (see contact details below).

This study has been approved by the Tasmanian Health and Medical Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the Human Research Ethics Committee HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number H0013050.

Thank you for taking the time to read this information sheet. The sheet is yours to keep. Should you wish to participate you can contact myself by phone or email and I will provide a consent form, a collaboration reporting form, and arrange a time and place suitable for an interview.

UNIVERSITY OF TASMANIA

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Supervisors:

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Appendix H: Collaboration reporting form

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Email rural.health@utas.edu.au

Collaboration Reporting Form

Version 1.0

7 January 2013

UNIVERSITY DEPARTMENT OF RURAL HEALTH

UNIVERSITY OF TASMANIA

Collaboration Reporting Form

This research project is being conducted as part of a PhD research study through the University Of Tasmania's Department Of Rural Health.

This form is designed to allow participants to record situations where they have undertaken collaborative activity incorporating paramedic care.

Collaboration is when multiple workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers and communities to deliver the highest quality of care across settings.

Instructions:

This form should be commenced at least two months prior to the date of research interview.

As soon as possible following collaboration in patient care where paramedic care was involved please record the situation.

The form is divided into four columns:

Collaborative Situation - needs only be in brief description, e.g.; motor car accident, stroke, cardiac problem etc.

Personnel Involved – list the types of personnel involved

Effective aspects – these are effective aspect of the situation listed. They need only be very brief and can include single words

Less-effective aspects – need only be brief (as above)

Should you not have any situations of collaboration to report in the two month period, you can record situations you may recall from past experience. If reporting from past experience please note this on the form

Example 1:

Collaborative situation	Personnel involved	Effective aspects	Less-effective aspects
Car Accident	paramedic SES Fire Nurse Local Doctor	Communication Quick extrication	Handover at hospital too long

Example 2:

Collaborative situation	Personnel involved	Effective aspects	Less-effective aspects
Stroke	Nurse GP Paramedic	Good overall patient care Direction of care by GP	Paramedic called out on another case before handover

Example 3:

Collaborative situation	Personnel involved	Effective aspects	Less-effective aspects
Training session	Nurse Paramedic	Clear delivery Easy to understand	Subject matter at a lower level than qualifications of most participants

Participant Occupation: (e.g. paramedic, nurse)……..

Collaborative situation	Personnel involved	Effective aspects	Less-effective aspects

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Dr Jess Woodroffe, University of Tasmania
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Email: jjwhelan@utas.edu,au

Ethics Approval:

Executive Officer
HREC (Tasmania) Network
University of Tasmania
Phone (03) 6226 7479
Email: human.ethics@utas.edu.au

Approval no: H0013050

Appendix I: Interview schedule

The schedule for interviews with participants is as follows:

- Introduction and confirmation of consent.
- Reminder that participants should refer to their situation reporting form to help answer the following questions.
- Should the participant not have any recent situations as per the situation reporting form, questions can be asked based on any recollected collaborative situation.

Main interview questions

- Can you describe situations whereby you have undertaken collaboration with another health professional? (For non-paramedics this question will ask about collaboration with a paramedic)

- What were effective aspects about these situations?

- What aspects about these situations were less effective?

- Are there any more details you would like to offer concerning situations of collaboration?

Interview Prompts (if needed)

- What preceded and contributed to each situation?
- What did the person or people involved in the situations do or not do, that had an effect?
- What was the outcome or result?
- What made actions effective or ineffective?
- What could have made actions more effective?
- What effect did leadership (or lack of) have on the outcome?
- Who were the leaders/leading agencies in each situation, and why?
- How appropriately do you think all participants were trained to manage this situation?
- Do you feel all people involved had clear roles or was there some blurring of duties/roles?

Appendix J: Example of memo coding

Memo 2	Initial Codes	Focused Codes	Category
Two ambulance volunteers actively declined to participate. Despite assurance, as to potential valuable input for the research they declined to participate due a perception they were just drivers. They felt they had not much to contribute based on this. Both volunteers were respected community members with high levels of educational qualification.	Declining Reassuring "potential valuable input" Perceptions "Just drivers" Valuing / confidence "not much to contribute" Valuing "respected community members"	Professional confidence Professional respect Undervalued by others Community / professional mismatch	Relationships

Appendix K: Focused codes compared to rural classifications

Focused Codes	**Sites by rural classification**			
	RA 2	RA 3	RA 4	RA 5
determining roles within team				
differences in opinion				
diversity of work				
effective working within a team				
effects of gender				
effects of individuals				
influence of communication				
involving the patient				
knowing team members				
obstructions to teamwork				
professional ownership				
role and professional awareness				
satisfaction in working in a team				
skills and knowledge				
willingness to work together				
working in a rural environment				
working in difficult circumstances				
working solutions around care				

Key:		Code present
		Code not represented

Appendix L: Gantt chart of research timelines